



# HPW™ Mixing Console Owner's Manual







**HPW**  
**Owner's Manual**

Model Number : \_\_\_\_\_

Serial Number : \_\_\_\_\_

opt- external PSU Serial \_\_\_\_\_

Owner : \_\_\_\_\_

Purchase Date : \_\_\_\_\_

Dealer Name : \_\_\_\_\_

Dealer Number : \_\_\_\_\_

Install Date : \_\_\_\_\_

Installed By : \_\_\_\_\_

Contact Number : \_\_\_\_\_



Intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



Intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

**CAUTION:** Risk of electrical shock — DO NOT OPEN!

**CAUTION:** To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

**WARNING:** To prevent electrical shock or fire hazard, this apparatus should not be exposed to rain or moisture, and objects filled with liquids, such as vases, should not be placed on this apparatus. Before using this apparatus, read the operating guide for further warnings.



Este símbolo tiene el propósito, de alertar al usuario de la presencia de “(voltaje) peligroso” sin aislamiento dentro de la caja del producto y que puede tener una magnitud suficiente como para constituir riesgo de descarga eléctrica.



Este símbolo tiene el propósito de alertar al usuario de la presencia de instrucciones importantes sobre la operación y mantenimiento en la información que viene con el producto.

**PRECAUCION:** Riesgo de descarga eléctrica ¡NO ABRIR!

**PRECAUCION:** Para disminuir el riesgo de descarga eléctrica, no abra la cubierta. No hay piezas útiles dentro. Deje todo mantenimiento en manos del personal técnico cualificado.

**ADVERTENCIA:** Para prevenir choque eléctrico o riesgo de incendios, este aparato no se debe exponer a la lluvia o a la humedad. Los objetos llenos de líquidos, como los floreros, no se deben colocar encima de este aparato. Antes de usar este aparato, lea la guía de funcionamiento para otras advertencias.



Ce symbole est utilisé dans ce manuel pour indiquer à l'utilisateur la présence d'une tension dangereuse pouvant être d'amplitude suffisante pour constituer un risque de choc électrique.



Ce symbole est utilisé dans ce manuel pour indiquer à l'utilisateur qu'il ou qu'elle trouvera d'importantes instructions concernant l'utilisation et l'entretien de l'appareil dans le paragraphe signalé.

**ATTENTION:** Risques de choc électrique — NE PAS OUVRIR!

**ATTENTION:** Afin de réduire le risque de choc électrique, ne pas enlever le couvercle. Il ne se trouve à l'intérieur aucune pièce pouvant être réparée par l'utilisateur. Confiez l'entretien et la réparation de l'appareil à un réparateur Crest agréé.

**AVIS:** Dans le but de réduire les risques d'incendie ou de décharge électrique, cet appareil ne doit pas être exposé à la pluie ou à l'humidité et aucun objet rempli de liquide, tel qu'un vase, ne doit être posé sur celui-ci. Avant d'utiliser de cet appareil, lisez attentivement le guide fonctionnant pour avertissements supplémentaires.



Dieses Symbol soll den Anwender vor unisolierten gefährlichen Spannungen innerhalb des Gehäuses warnen, die von Ausreichender Stärke sind, um einen elektrischen Schlag verursachen zu können.



Dieses Symbol soll den Benutzer auf wichtige Instruktionen in der Bedienungsanleitung aufmerksam machen, die Handhabung und Wartung des Produkts betreffen.

**VORSICHT:** Risiko — Elektrischer Schlag! Nicht öffnen!

**VORSICHT:** Um das Risiko eines elektrischen Schlages zu vermeiden, nicht die Abdeckung entfernen. Es befinden sich keine Teile darin, die vom Anwender repariert werden könnten. Reparaturen nur von qualifiziertem Fachpersonal durchführen lassen.


**WARNUNG:** Um elektrischen Schlag oder Brandgefahr zu verhindern, sollte dieser Apparat nicht Regen oder Feuchtigkeit ausgesetzt werden und Gegenstände mit Flüssigkeiten gefüllt, wie Vasen, nicht auf diesen Apparat gesetzt werden. Bevor dieser Apparat verwendet wird, lesen Sie bitte den Funktionsführer für weitere Warnungen.



## IMPORTANT SAFETY INSTRUCTIONS



**WARNING:** When using electrical products, basic cautions should always be followed, including the following:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding plug. The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point they exit from the apparatus.
11. Only use attachments/accessories provided by the manufacturer.
12. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13.  Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Never break off the ground pin. Write for our free booklet "Shock Hazard and Grounding." Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
16. If this product is to be mounted in an equipment rack, rear support should be provided.
17. Note for UK only: If the colors of the wires in the mains lead of this unit do not correspond with the terminals in your plug, proceed as follows:
  - a) The wire that is colored green and yellow must be connected to the terminal that is marked by the letter E, the earth symbol, colored green or colored green and yellow.
  - b) The wire that is colored blue must be connected to the terminal that is marked with the letter N or the color black.
  - c) The wire that is colored brown must be connected to the terminal that is marked with the letter L or the color red.
18. Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures:

Duration Per Day In Hours	Sound Level dBA, Slow Response
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115


According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss. Ear plugs or protectors to the ear canals or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss, if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.

**SAVE THESE INSTRUCTIONS!**

## WICHTIGE SICHERHEITSHINWEISE



**ACHTUNG:** Beim Einsatz von Elektrogeräten müssen u.a. grundlegende Vorsichtsmaßnahmen befolgt werden:

1. Lesen Sie sich diese Anweisungen durch.
2. Bewahren Sie diese Anweisungen auf.
3. Beachten Sie alle Warnungen.
4. Befolgen Sie alle Anweisungen.
5. Setzen Sie dieses Gerät nicht in der Nähe von Wasser ein.
6. Reinigen Sie es nur mit einem trockenen Tuch.
7. Blockieren Sie keine der Lüftungsöffnungen. Führen Sie die Installation gemäß den Anweisungen des Herstellers durch.
8. Installieren Sie das Gerät nicht neben Wärmequellen wie Heizungen, Heizgeräten, Öfen oder anderen Geräten (auch Verstärkern), die Wärme erzeugen.
9. Beeinträchtigen Sie nicht die Sicherheitswirkung des gepolten Steckers bzw. des Erdungssteckers. Ein gepolter Stecker weist zwei Stifte auf, von denen einer breiter ist als der andere. Ein Erdungsstecker weist zwei Stifte und einen dritten Erdungsstift auf. Der breite Stift bzw. der dritte Stift dient Ihrer Sicherheit. Sollte der beiliegende Stecker nicht in Ihre Steckdose passen, wenden Sie sich bitte an einen Elektriker, um die ungeeignete Steckdose austauschen zu lassen.
10. Schützen Sie das Netzkabel, sodass niemand darauf tritt oder es geknickt wird, insbesondere an Steckern oder Buchsen und ihren Austrittsstellen aus dem Gerät.
11. Verwenden Sie nur die vom Hersteller erhältlichen Zubehörgeräte oder Zubehörteile.
12.  Verwenden Sie nur einen Wagen, Stativ, Dreifuß, Träger oder Tisch, der den Angaben des Herstellers entspricht oder zusammen mit dem Gerät verkauft wurde. Wird ein Wagen verwendet, bewegen Sie den Wagen mit dem darauf befindlichen Gerät besonders vorsichtig, damit er nicht umkippt und möglicherweise jemand verletzt wird.
13. Trennen Sie das Gerät während eines Gewitters oder während längerer Zeiträume, in denen es nicht benutzt wird, von der Stromversorgung.
14. Lassen Sie sämtliche Wartungsarbeiten von qualifizierten Kundendiensttechnikern durchführen. Eine Wartung ist erforderlich, wenn das Gerät in irgendeiner Art beschädigt wurde, etwa wenn das Netzkabel oder der Netzstecker beschädigt wurden, Flüssigkeit oder Gegenstände in das Gerät gelangt sind, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, nicht normal arbeitet oder heruntergefallen ist.
15. Der Erdungsstift darf nie entfernt werden. Auf Wunsch senden wir Ihnen gerne unsere kostenlose Broschüre „Shock Hazard and Grounding“ (Gefahr durch elektrischen Schlag und Erdung) zu. Schließen Sie nur an die Stromversorgung der Art an, die am Gerät neben dem Netzkabel angegeben ist.
16. Wenn dieses Produkt in ein Geräte-Rack eingebaut werden soll, muss eine Versorgung über die Rückseite eingerichtet werden.
17. Hinweis – Nur für Großbritannien: Sollte die Farbe der Drähte in der Netzleitung dieses Geräts nicht mit den Klemmen in Ihrem Stecker übereinstimmen, gehen Sie folgendermaßen vor:
  - a) Der grün-gelbe Draht muss an die mit E (Symbol für Erde) markierte bzw. grüne oder grün-gelbe Klemme angeschlossen werden.
  - b) Der blaue Draht muss an die mit N markierte bzw. schwarze Klemme angeschlossen werden.
  - c) Der braune Draht muss an die mit L markierte bzw. rote Klemme angeschlossen werden.
18. Dieses Gerät darf nicht ungeschützt Wassertropfen und Wasserspritzern ausgesetzt werden und es muss darauf geachtet werden, dass keine mit Flüssigkeiten gefüllte Gegenstände, wie z. B. Blumenvasen, auf dem Gerät abgestellt werden.
19. Belastung durch extrem hohe Lärmpegel kann zu dauerhaftem Gehörverlust führen. Die Anfälligkeit für durch Lärm bedingten Gehörverlust ist von Mensch zu Mensch verschieden, das Gehör wird jedoch bei jedem in gewissem Maße geschädigt, der über einen bestimmten Zeitraum ausreichend starkem Lärm ausgesetzt ist. Die US-Arbeitsschutzbehörde (Occupational and Health Administration, OSHA) hat die folgenden zulässigen Pegel für Lärmbelastung festgelegt:

Dauer pro Tag in Stunden	Geräuschpegel dBA, langsame Reaktion
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ oder weniger	115


Laut OSHA kann jede Belastung über den obenstehenden zulässigen Grenzwerten zu einem gewissen Gehörverlust führen. Sollte die Belastung die obenstehenden Grenzwerte übersteigen, müssen beim Betrieb dieses Verstärkungssystems Ohrenstopfen oder Schutzeinrichtungen im Gehörgang oder über den Ohren getragen werden, um einen dauerhaften Gehörverlust zu verhindern. Um sich vor einer möglicherweise gefährlichen Belastung durch hohe Schalldruckpegel zu schützen, wird allen Personen empfohlen, die mit Geräten arbeiten, die wie dieses Verstärkungssystem hohe Schalldruckpegel erzeugen können, beim Betrieb dieses Geräts einen Gehörschutz zu tragen.

**BEWAHREN SIE DIESE SICHERHEITSHINWEISE AUF!**

## INSTRUCTIONS IMPORTANTES DE SECURITE

ATTENTION: L'utilisation de tout appareil électrique doit être soumise aux précautions d'usage incluant:



1. Lire ces instructions.
2. Gardez ce manuel pour de futures références.
3. Prêtez attention aux messages de précautions de ce manuel.
4. Suivez ces instructions.
5. N'utilisez pas cette unité proche de plans d'eau.
6. N'utilisez qu'un tissu sec pour le nettoyage de votre unité.
7. N'obstruez pas les systèmes de refroidissement de votre unité et installez votre unité en fonction des instructions de ce manuel.
8. Ne positionnez pas votre unité à proximité de toute source de chaleur.
9. Connectez toujours votre unité sur une alimentation munie de prise de terre utilisant le cordon d'alimentation fourni.
10. Protégez les connecteurs de votre unité et positionnez les cablages pour éviter toutes déconnexions accidentelles.
11. N'utilisez que des fixations approuvées par le fabricant.
12.  Lors de l'utilisation sur pied ou poteau de support, assurez dans le cas de déplacement de l'ensemble enceinte/ support de prévenir tout basculement intempestif de celui-ci.
13. Il est conseillé de déconnecter du secteur votre unité en cas d'orage ou de durée prolongée sans utilisation.
14. Seul un technicien agréé par le fabricant est à même de réparer/contrôler votre unité. Celle-ci doit être contrôlée si elle a subi des dommages de manipulation, d'utilisation ou de stockage (humidité,...).
15. Ne déconnectez jamais la prise de terre de votre unité.
16. Si votre unité est destinée à être montée en rack, des supports arrière doivent être utilisés.
17. Note pour les Royaumes-Unis: Si les couleurs de connecteurs du câble d'alimentation ne correspondent pas au guide de la prise secteur, procédez comme suit:
  - a) Le connecteur vert et jaune doit être connecté au terminal noté E, indiquant la prise de terre ou correspondant aux couleurs verte ou verte et jaune du guide.
  - b) Le connecteur Bleu doit être connecté au terminal noté N, correspondant à la couleur noire du guide.
  - c) Le connecteur marron doit être connecté au terminal noté L, correspondant à la couleur rouge du guide.
18. Cet équipement électrique ne doit en aucun cas être en contact avec un quelconque liquide et aucun objet contenant un liquide, vase ou autre ne devrait être posé sur celui-ci.
19. Une exposition à de hauts niveaux sonores peut conduire à des dommages de l'écoute irréversibles. La susceptibilité au bruit varie considérablement d'un individu à l'autre, mais une large majorité de la population expérimentera une perte de l'écoute après une exposition à une forte puissance sonore pour une durée prolongée. L'organisme de la santé américaine (OSHA) a produit le guide ci-dessous en rapport à la perte occasionnée:

Durée par Jour (heures)	Niveau sonore moyen (dBA)
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ ou inférieur	115


D'après les études menées par le OSHA, toute exposition au delà des limites décrites ci-dessus entraînera des pertes de l'écoute chez la plupart des sujets. Le port de système de protection (casque, oreillette de filtrage,...) doit être observé lors de l'opération cette unité ou des dommages irréversibles peuvent être occasionnés. Le port de ces systèmes doit être observé par toutes personnes susceptibles d'être exposées à des conditions au delà des limites décrites ci-dessus.

**GARDEZ CES INSTRUCTIONS!**

## INSTRUCCIONES IMPORTANTES PARA SU SEGURIDAD

**CUIDADO:** Cuando use productos electrónicos, debe tomar precauciones básicas, incluyendo las siguientes:



1. Lea estas instrucciones.
2. Guarde estas instrucciones.
3. Haga caso de todos los consejos.
4. Siga todas las instrucciones.
5. No usar este aparato cerca del agua.
6. Limpiar solamente con una tela seca.
7. No bloquear ninguna de las salidas de ventilación. Instalar de acuerdo a las instrucciones del fabricante.
8. No instalar cerca de ninguna fuente de calor como radiadores, estufas, hornos u otros aparatos (incluyendo amplificadores) que produzcan calor.
9. No retire la patilla protectora del enchufe polarizado o de tipo "a Tierra". Un enchufe polarizado tiene dos puntas, una de ellas más ancha que la otra. Un enchufe de tipo "a Tierra" tiene dos puntas y una tercera "a Tierra". La punta ancha (la tercera) se proporciona para su seguridad. Si el enchufe proporcionado no encaja en su enchufe de red, consulte a un electricista para que reemplace su enchufe obsoleto.
10. Proteja el cable de alimentación para que no sea pisado o pinchado, particularmente en los enchufes, huecos, y los puntos que salen del aparato.
11. Usar solamente añadidos/accesorios proporcionados por el fabricante.
12.  Usar solamente un carro, pie, trípode, o soporte especificado por el fabricante, o vendido junto al aparato. Cuando se use un carro, tenga cuidado al mover el conjunto carro/aparato para evitar que se dañe en un vuelco. No suspenda esta caja de ninguna manera.
13. Desenchufe este aparato durante tormentas o cuando no sea usado durante largos periodos de tiempo.
14. Para cualquier reparación, acuda a personal de servicio cualificado. Se requieren reparaciones cuando el aparato ha sido dañado de alguna manera, como cuando el cable de alimentación o el enchufe se han dañado, algún líquido ha sido derramado o algún objeto ha caído dentro del aparato, el aparato ha sido expuesto a la lluvia o la humedad, no funciona de manera normal, o ha sufrido una caída.
15. Nunca retire la patilla de Tierra. Escríbanos para obtener nuestro folleto gratuito "Shock Hazard and Grounding" ("Peligro de Electrocutación y Toma a Tierra"). Conecte el aparato sólo a una fuente de alimentación del tipo marcado al lado del cable de alimentación.
16. Si este producto va a ser enracado con más equipo, use algún tipo de apoyo trasero.
17. Nota para el Reino Unido solamente: Si los colores de los cables en el enchufe principal de esta unidad no corresponden con los terminales en su enchufe, proceda de la siguiente manera:
  - a) El cable de color verde y azul debe ser conectado al terminal que está marcado con la letra E, el símbolo de Tierra (earth), coloreado en verde o en verde y amarillo.
  - b) El cable coloreado en azul debe ser conectado al terminal que está marcado con la letra N o el color negro.
  - c) El cable coloreado en marrón debe ser conectado al terminal que está marcado con la letra L o el color rojo.
18. Este aparato eléctrico no debe ser sometido a ningún tipo de goteo o salpicadura y se debe tener cuidado para no poner objetos que contengan líquidos, como vasos, sobre el aparato.
19. La exposición a altos niveles de ruido puede causar una pérdida permanente en la audición. La susceptibilidad a la pérdida de audición provocada por el ruido varía según la persona, pero casi todo el mundo perderá algo de audición si se expone a un nivel de ruido suficientemente intenso durante un tiempo determinado. El Departamento para la Salud y para la Seguridad del Gobierno de los Estados Unidos (OSHA) ha especificado las siguientes exposiciones al ruido permisibles:

Duración por Día en Horas	Nivel de Sonido dBA, Respuesta Lenta
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ o menos	115

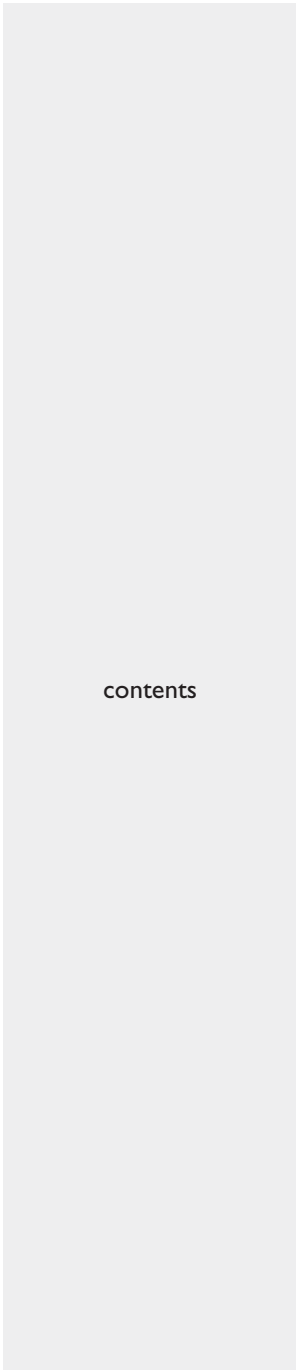
De acuerdo al OSHA, cualquier exposición que exceda los límites arriba indicados puede producir algún tipo de pérdida en la audición. Protectores para los canales auditivos o tapones para los oídos deben ser usados cuando se opere con este sistema de sonido para prevenir una pérdida permanente en la audición, si la exposición excede los límites indicados más arriba. Para protegerse de una exposición a altos niveles de sonido potencialmente peligrosa, se recomienda que todas las personas expuestas a equipamiento capaz de producir altos niveles de presión sonora, tales como este sistema de amplificación, se encuentren protegidas por protectores auditivos mientras esta unidad esté operando.

**GUARDE ESTAS INSTRUCCIONES!**

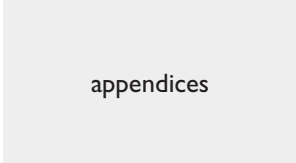


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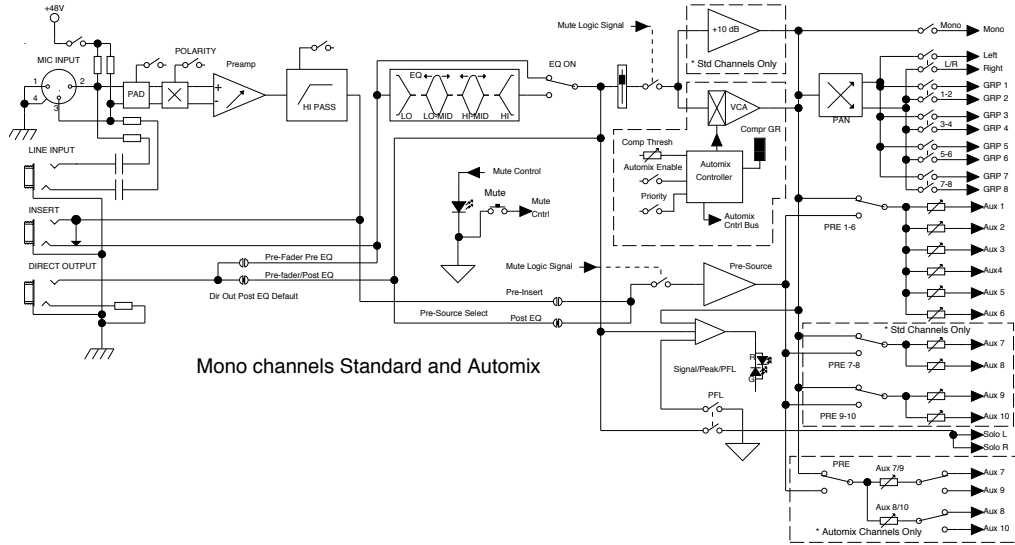
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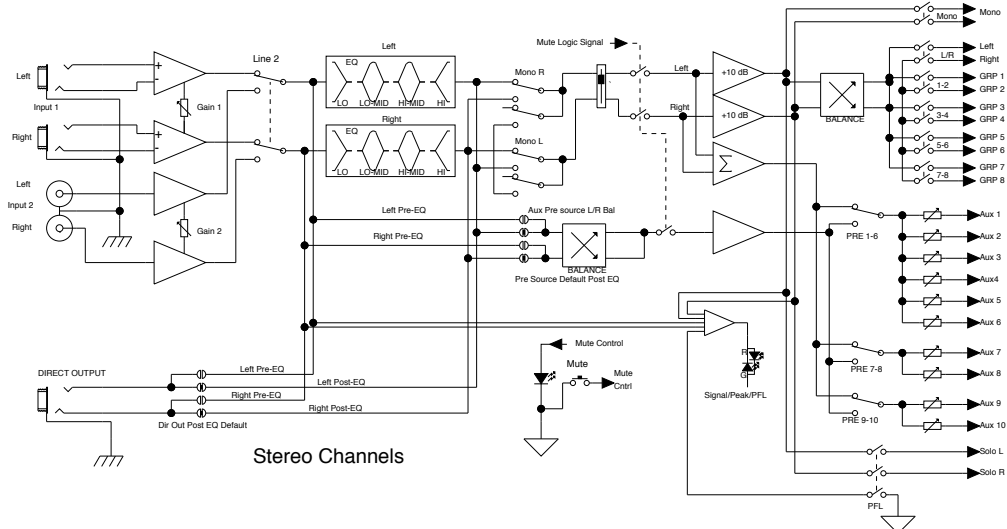
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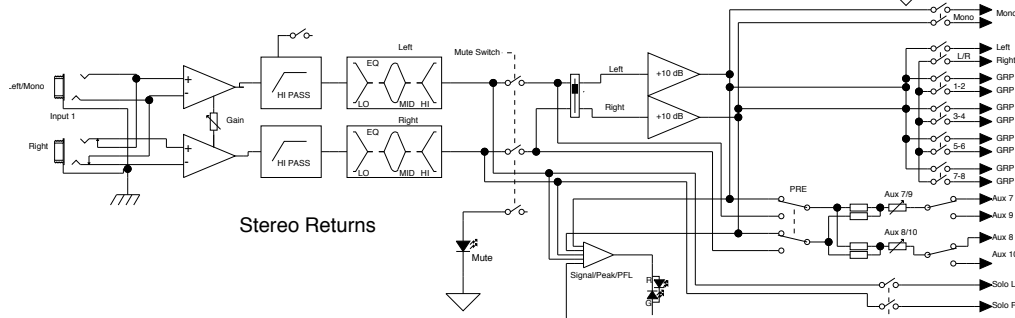
appendices



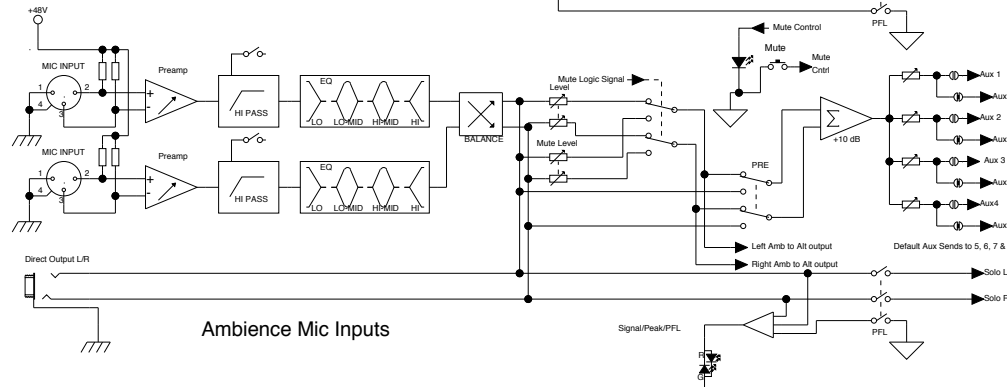
Mono channels Standard and Automix



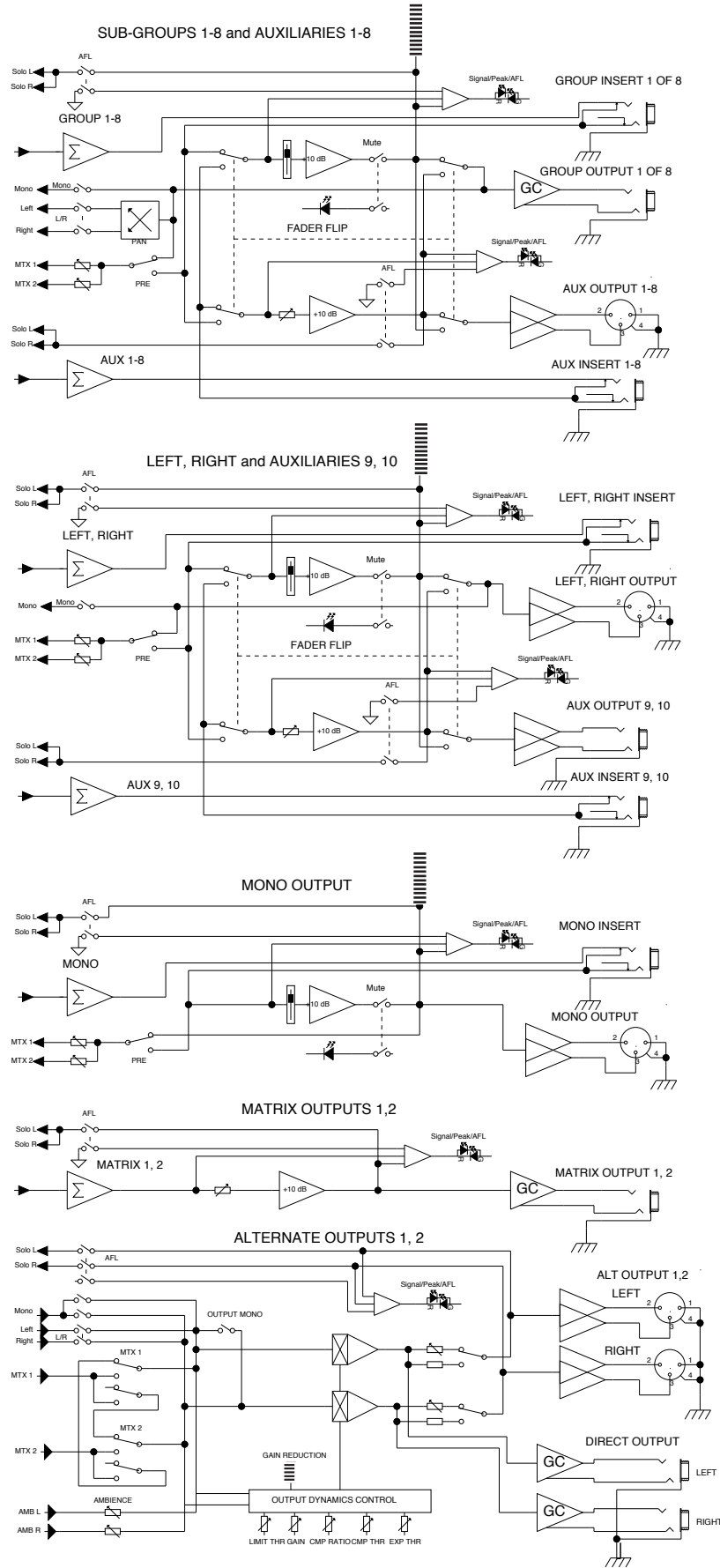
Stereo Channels



Stereo Returns

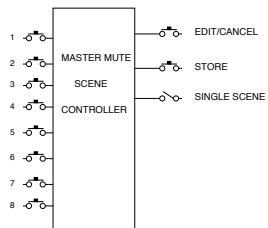
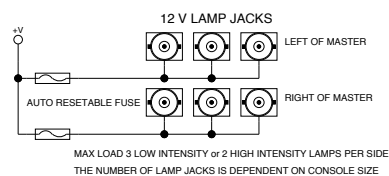
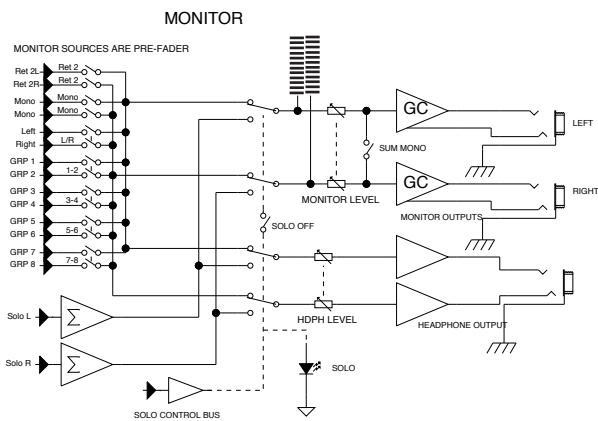
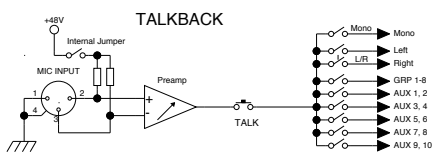


Ambience Mic Inputs





# block diagram 2



- 1 **+48V** - +48 volts DC is applied equally (through current-limiting resistors) to both pins 2 and 3 on the mic-input XLR connector. This feature is used with condenser microphones and active direct boxes that require an external DC voltage (phantom power) in order to operate.

For dynamic or ribbon mics, phantom voltage is not required and should be switched OFF.

**NOTE:** Operating this switch (“ON” or “OFF”) causes large voltage swings to occur at the input of the mic preamp. Care should be taken to insure that the channel is muted, or the main faders are pulled down, to prevent a “pop” from reaching the audience.

- 2 **pad** - When engaged, the input signal is attenuated by 25dB to prevent strong signals (from kick drums or lead vocals, for example) from overloading the preamp stage. The pad is used to bring a hot mic-input signal down to a controllable level, or when a line-level signal is present at the XLR input jack. This affects both the XLR and the 1/4” inputs.

- 3 **gain** - The Input gain control range is closely related to the status of the PAD switch. In order to establish proper gain structure in the console, input gain settings must be set correctly, using the PFL switch and Solo system. The optimum gain setting will result in a 0dB level when checked using the PFL metering.

- 4 **polarity (reverse)** - This feature reverses the phase of the input signal and is used for correcting or minimizing polarity and phase related errors. For example, occasionally a balanced input connection is reverse-wired before it gets to the mixing console. This can happen in microphones, or in snake line interfaces. By using the polarity button, this type of error can be corrected.

normal polarity (Pin 2 Hot) - switch “IN” position reverses polarity

- 5 **lo-cut filter** - This filter reduces or eliminates unwanted low frequencies without substantially affecting the program material. Quite often, such unwanted low frequencies are included with mic- or line-input signals. For example, stage rumble or wind can be picked up through vocal mics. The cut-off frequency of the filter is 70 Hz and the slope is -18dB per octave. This type of filter is also referred to as a Hi-pass filter (HPF). It allows the hi-frequencies to pass, but it stops the lo-frequencies.

lo cut switch

When this button is depressed, Lo-Cut filter is on.

The 48V switch should not be engaged when using standard (dynamic) microphones or other sources that do not use phantom power.



If the channel peak LED is illuminated, first try lowering the input gain control.



Only when this method is unsuccessful should the pad switch be engaged.

When similar signals from different channels are combined, phase cancellations can occur.



Reversing the polarity of an input signal can often minimize such phasing errors.

When performing outdoors, wind-induced, low-frequency rumble can get into the input channels thru the microphones.



Engaging the Lo-Cut filter can eliminate these power-stealing low frequencies.

## EQ features

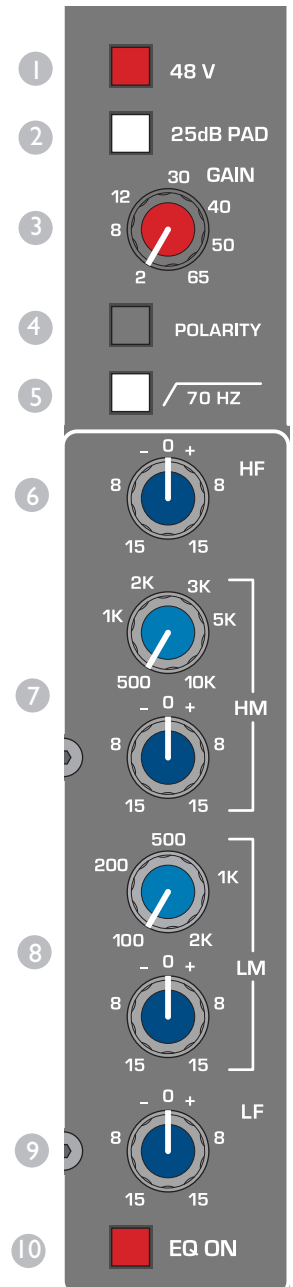
Many audio signals coming into the console require some degree of corrective equalization in order to be part of a good sounding mix.

The input EQ consists of four-bands: high, high-mid, low-mid and low. The high and low bands have fixed frequencies, while the high-mid and low-mid bands are sweepable, with their higher and lower frequencies overlapping adjacent bands.

- 6 **high frequency—HF**  
15dB boost and cut at 12kHz—Shelving Response
- 7 **high-mid frequency—HM**  
Selectable frequency range of 500Hz to 10 kHz  
The response is bell-shaped with a fixed Q of 1.5.  
  
15dB boost and cut centered at the selected frequency
- 8 **low-mid frequency—LM**  
Selectable frequency range of 100Hz to 2kHz.  
The response is bell-shaped with a fixed Q of 1.5.  
  
15dB boost and cut centered at the selected frequency
- 9 **low frequency—LF**  
15dB boost and cut at 80Hz—Shelving Response
- 10 **eq on**  
When the button is “OUT,” the EQ circuits are bypassed.  
  
When the button is “IN,” the EQ circuits are engaged. This switch can be used to make A/B comparisons between “flat” and equalized signals.

## aux send features

Ten aux sends are available for creating individual output mixes. These mixes can be used for driving effects processors, providing monitor mixes, creating broadcast or alternate sound reinforcement mixes, or other special requirements. With the corresponding PRE switches in the “OUT” position, the Aux sends are fed from the Post-fader channel signal. When the PRE switch is depressed (“IN”), the corresponding Aux sends are fed from the Channel’s Post-EQ, Pre-fader signal. An internal option allows the user to change this PRE point to the Pre-Insert, Pre-EQ signal on a channel-by-channel basis. All Aux sends are affected by the channel Mute switch.



# 3 mono input

- 11 **PRE (aux 1–6)** - The default signal source for these Aux sends is post-fader. This switch is used for selecting the Pre-fader signal for Auxes 1-6. The normal Pre-fader signal is derived Post-EQ.

(See internal jumper options on page 18.)

Aux sends are Post-EQ, Post-fader

Aux sends are Post-insert, Post-EQ, Pre-fader

- 12 **aux send level 1–10**

These knobs adjust the amount of signal sent to the corresponding AUX buses. Unity gain occurs at the zero setting, with 6dB additional gain is available above that.

- 13 **PRE (aux 7–8 and aux 9–10)** - The default signal source for these AUX SENDS is post-fader. These switches are used for selecting the Pre-fader signals for Auxes 7-8 and 9-10. The normal Pre-fader signal is derived Post-EQ.

(See internal jumper options on page 18.)

When button is in the “OUT” position, aux sends are Post-EQ, Post-fader.

When button is in the “IN” position, aux sends are Post-insert, Post-EQ, Pre-fader.

## bus assignment features

The Input bus assignment section offers considerable flexibility for creating what eventually becomes the main output mix. Channels can be assigned to the independent Mono bus, the pan-paired Left/Right buses, or any of the pan-paired subgroups (1-2, 3-4, 5-6, 7-8). All assignments are derived post-fader, post-eq, and post-mute.

- 14 **pan control** - The pan control positions the post-fader channel signal within the stereo left-right field, or between the Odd and Even groups of an assigned pair. The signal is down by approximately -3dB at the center-detent position when panning across the buses.

- 15 **bus assign M (Mono)**

Assigns the post-fader channel signal to the Mono Bus. The pan-pot position does not affect the signal to the Mono bus.

### L-R (Left- Right)

Assigns the post-fader, pan-pot signals to the Left and Right Buses.

### 1-2 (Groups 1-2)

Assigns the post-fader, pan-pot signals to the Group 1 and Group 2 Buses.

### 3-4 (Groups 3-4)

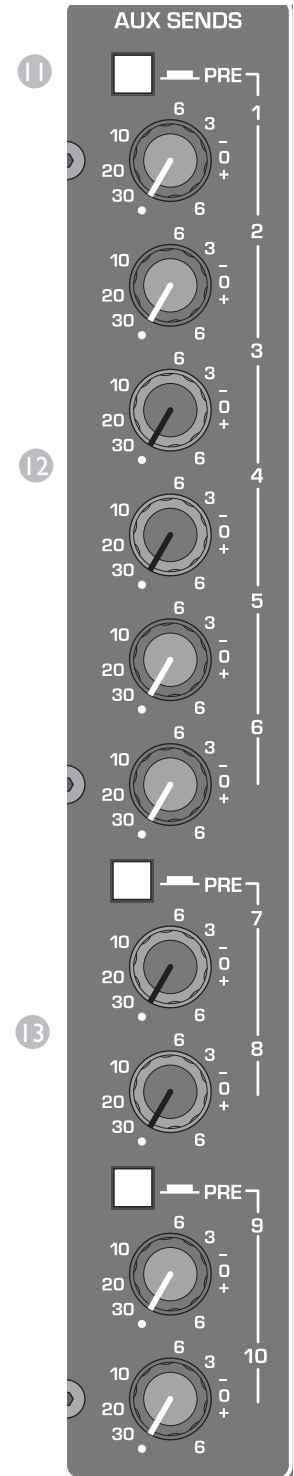
Assigns the post-fader, pan-pot signals to the Group 3 and Group 4 Buses.

### 5-6 (Groups 5-6)

Assigns the post-fader, pan-pot signals to the Group 5 and Group 6 Buses.

### 7-8 (Groups 7-8)

Assigns the post-fader, pan-pot signals to the Group 7 and Group 8 Buses.



## channel muting features

The HPW™ is equipped with an 8-Scene muting system. An input channel can be assigned to any of the 8 available groups (1 thru 8). When a Mute Scene preset (located in the Master module) is active, all channels assigned to that scene are muted. In addition, the local channel mute switch can be used to change the status of the channel independently of any of the scenes. Remember, a channel that has been assigned to a mute scene, but independently “muted or unmuted,” remains in the assigned group and will continue to react to any commands given to that scene.

- 16 **mute (local mute)** - Pressing this switch will mute the output of the channel to any of the assigned buses and any Aux sends. Pressing it when the channel is muted will unmute the channel.

**mute led** - The associated red-LED illuminates when the channel is muted either by its local mute switch, or when part of an active Mute Scene.

- 17 **channel fader**

The channel is fitted with a high-quality, 100mm fader. Normal mixing range is around the “0” mark, with up to 10dB fader-boost available when needed. All Post-fader feeds from the channel are controlled by this fader (Post Aux sends and Bus assignments).

## channel monitoring features

The channel is equipped with a bicolor LED that displays the channel’s Pre-fader signal level with varying intensity green illumination, and also indicates impending channel overload (within 3dB of clipping) by turning red. Channel clipping is sensed both pre- and post-fader, so that preamp or EQ related problems are still indicated even when the fader is down.

A PFL (Pre-Fader Listen) switch allows the operator to monitor the channel’s signal in the console’s Solo system. When depressed, the channel’s pre-fader signal is sent to the console’s Solo system (see Master section for details on the Solo system functions).

- 18 **PK/Sig LED** - Pre-Fader signal is shown as varying GREEN intensity. Channel clip warning displays RED.

**PFL** - When this switch is depressed, the channel’s pre-fader signal is sent to the console’s Solo system. The channel LED illuminates RED to indicate that the PFL is active. The Solo meters then indicate the channel’s PFL level.

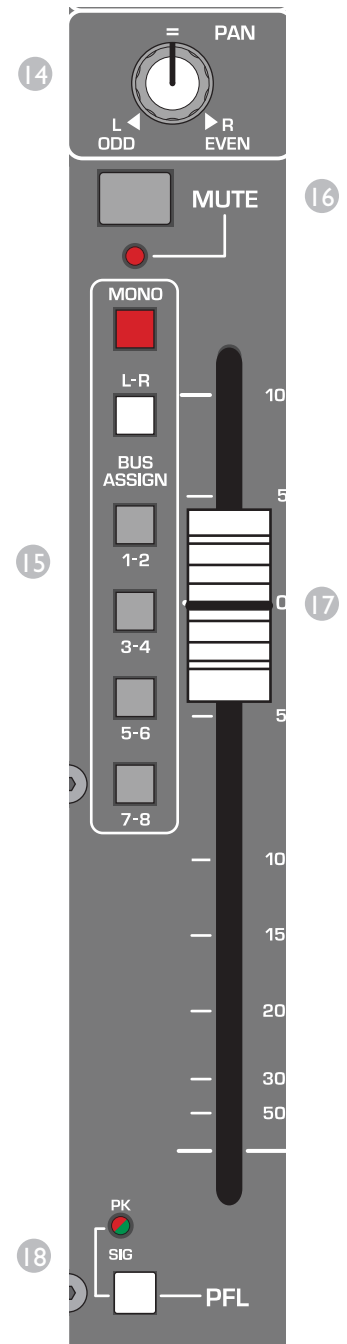
### Channel-LED status

**flickering green** - low signal level in the channel

**steady green** - good signal levels within the channel

**green with flickering red** - good signal levels with occasional peaks

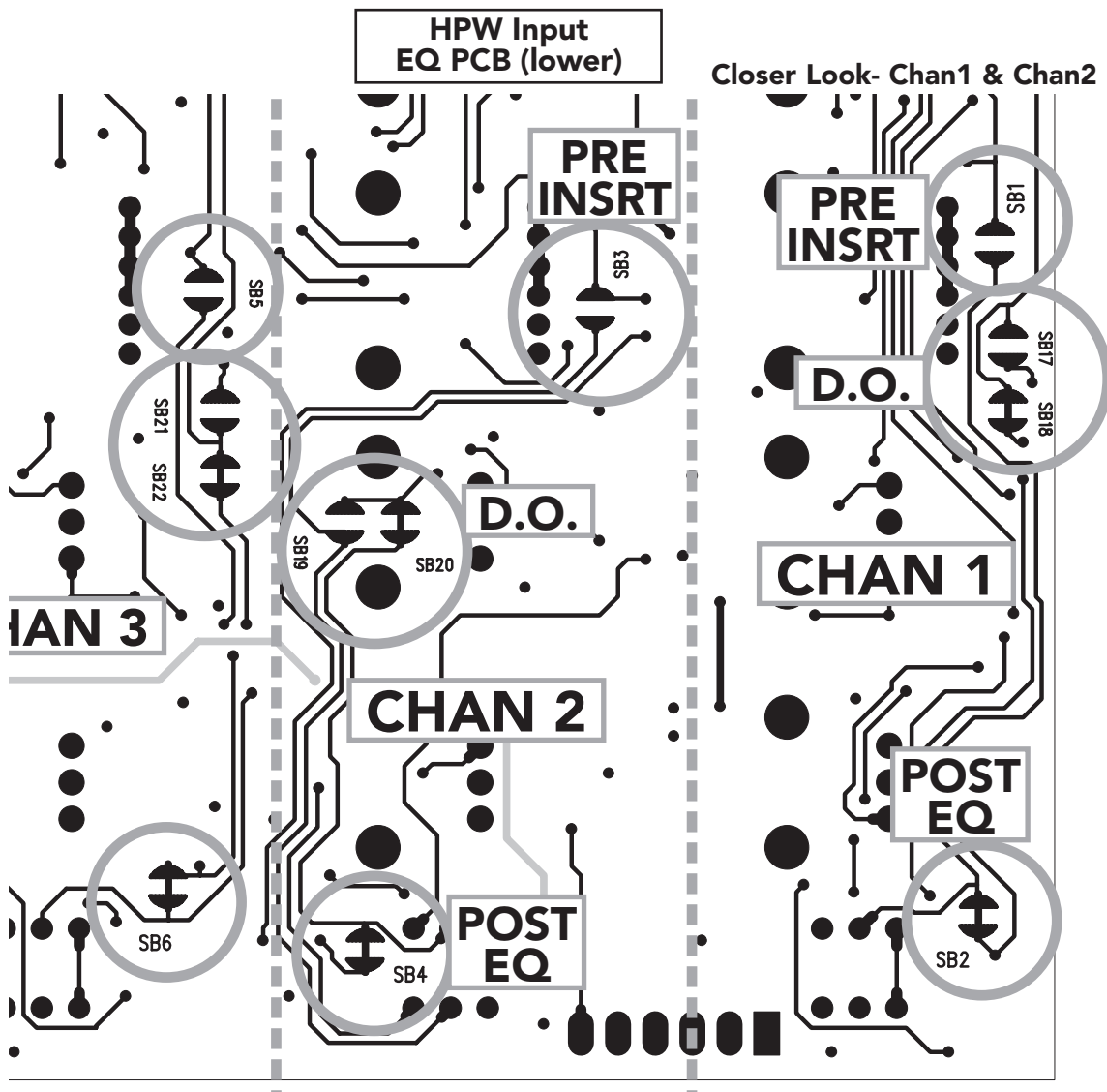
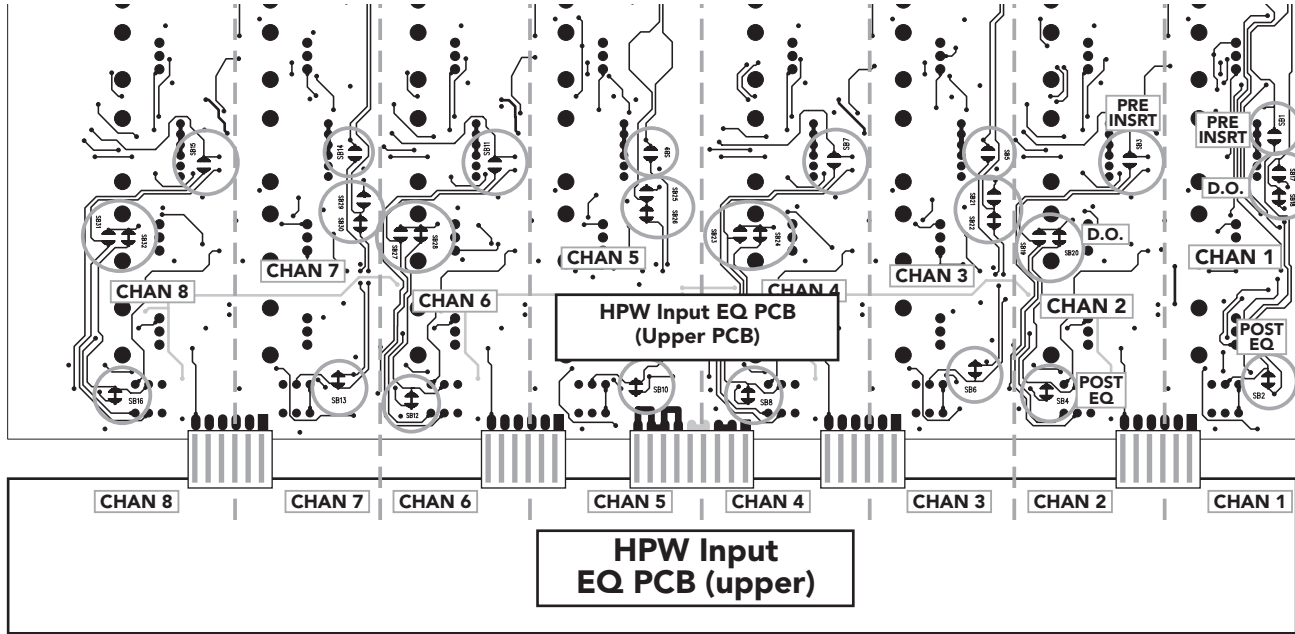
**steady red** - PFL selected



The signal present circuitry is sensed at the top of the channel fader, so it sees the audio path, which runs from the preamp, into the lo-cut filter, through the insert jack and finally through the EQ. The signal path has to be intact through all these stages for the green LED to illuminate. Any gain changes or audio processing affects the signal-present LED. Also, since the PFL feed is taken from this same, pre-fader point, the Solo meters and Solo headphones will monitor this overall channel signal.

# 3 mono input - options

## Solder-Blob locations



## user options

There are a number of user options available for the Mono inputs. These are implemented by way of solder-pads on the back-side of the Mono Input circuit boards (upper EQ board of the pair). There are a number of solder-pads available, made up of split-circles of tinned copper. Solder is bridged (blobbed) across the 2 halves to complete the circuit and implement the desired option. For the default setting, there is already a thin copper trace that connects the two halves, completing the default connection. This existing trace **MUST** be cut (use an X-acto knife) before an option is implemented.

To change back to the default operation after an option was performed, remove the blobbed solder from the option solder-pads (use a solder-sucker or solder-wick). Add a blob-link across the original, default pads to replace the thin trace that was previously cut when the option was first performed.

## aux “PRE” option

The Aux Sends on the Mono Input channels are normally fed by the Post-Fader/Post-Mute signal in the channel. There is a PRE switch (3) associated with each set of Aux Sends that will change the feed to a Pre-Fader point in the channel’s signal path. There are two choices for this PRE point: Pre-Fader/Post-EQ and Pre-Fader/Pre-Insert. This change is done on a channel-by-channel basis; each channel has its own set of solder-pads. All 3 of the PRE switches within that channel will be affected by the option change.

NOTE: The channel MUTE always affects the Aux sends, whether Pre or Post, optioned or not.

**Pre-Fader/Post-EQ:** This is the default setting for the PRE switch. The aux send signal is derived before the fader; but after the channel EQ.

**Pre-Fader/Pre-Insert:** This is the option for the PRE switch. The aux send signal is derived before the EQ, and before the Insert Send jack, so any external processing gear will NOT affect the Aux sends.

## direct out (D.O.) option

The Direct-Out jack on the Mono Input channels is normally fed by the Pre-Fader/Post-EQ signal in the channel. The option changes this point to Pre-Fader/Pre-EQ. This change is done on a channel-by-channel basis; each channel has its own set of solder-pads.

NOTE: The channel MUTE does NOT affect the Direct Out jack.

NOTE: The channel insert DOES affect the Direct Out jack.

**Pre-Fader/Post-EQ:** This is the default setting for the D.O. jack. The signal is derived before the fader; but after the channel EQ.

**Pre-Fader/Pre-EQ:** This is the option for the D.O. jack. The D.O. signal is derived before the fader and before the channel EQ.

The specified Solder-Blob (SBXX) shown in the table should be linked (by solder-bridging) to complete the circuit and implement the indicated option. The table below shows the specific SBXX for each of the 8 channels on a circuitboard. Before implementing an option (by blobbing), be SURE to cut the existing thin copper trace linking the two halves of the default SB. Failure to do so will result in channel operation problems and possible circuit damage.

HPW Mono Input OPTIONS TABLE				
	“PRE” Feed For Aux Sends		Channel Direct Out	
	Post-EQ (Default)	Pre-Insert	Post-EQ (Default)	Pre-EQ
Chan-1	SB2	SB1	SB18	SB17
Chan-2	SB4	SB3	SB20	SB19
Chan-3	SB6	SB5	SB22	SB21
Chan-4	SB8	SB7	SB24	SB23
Chan-5	SB10	SB9	SB26	SB25
Chan-6	SB12	SB11	SB28	SB27
Chan-7	SB13	SB14	SB30	SB29
Chan-8	SB16	SB15	SB32	SB31

NOTE: The astute observer will notice that, because of the presence of the various solder-points within the channel signal path, there are other possible connection options. For example: The Pre-EQ point that is used for the DO option CAN be used to feed the Aux Pre circuits. Contact the factory for specific information concerning non-standard options.

## rear panel features

**19 direct out 1/4" TRS jack** - The input channel's signal is available at this output jack. The default signal routing is derived Pre-fader/Post-EQ. This can be changed by an internal option to Post-insert/Pre-EQ. The output jack is TRS, impedance-balanced.

**20 insert jack** - This switching 1/4" TRS jack allows an external signal processor to be inserted into the signal path of the channel. The tip carries the SEND signal from the channel, and the ring carries the RETURN signal back to the channel. The Insert-Send point is located directly after the Lo-Cut filter on the channel. The Return comes back into the channel at the top of the EQ section.

Tip is Send, Ring is Return, Sleeve is Audio Ground.  
 Send (output) impedance is 50Ω  
 Return (input) impedance is 5KΩ  
 Nominal Operating Level is +4dBu

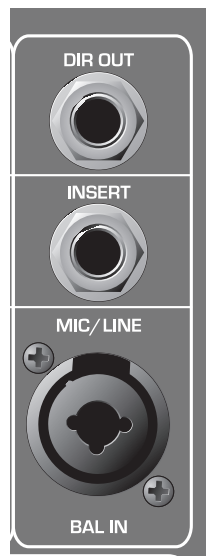
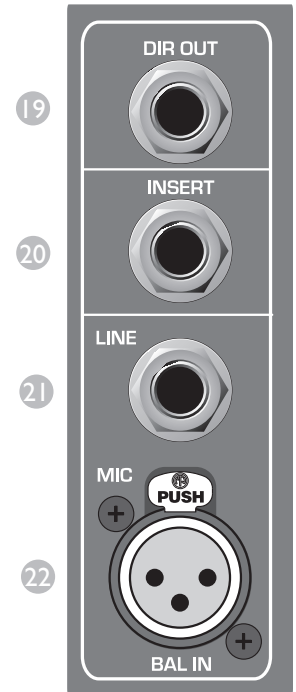
**NOTE:** To avoid any degradation of the HPW's channel signal, any processing gear patched into the channel insert should have a low impedance output (<100Ω) and must be capable of cleanly driving a 2KΩ load to +21dBu.

The insert jack can also be used as an additional channel output when a Post-low cut filter, Pre-EQ, Pre-fader signal is needed. A "Borrow" plug can be made by connecting the Tip and Ring contacts together. The signal obtained will be the Insert-Send signal, but the channel signal path will not be interrupted.

**21 line in** - The Line Input is a 1/4" balanced (TRS) 10k ohm input. The tip is the positive input, which should be used for unbalanced inputs. It has less gain than the XLR input and does not have Phantom Power available. The Mic and Line inputs should not be used simultaneously.

**22 balanced XLR input connector** - This balanced female XLR accepts a low-impedance microphone signal, or a line-level signal, depending on the position of the PAD switch on the front panel. **NOTE:** Pin 2 on Crest Products will always be Hot for both in and out connections.

**NOTE:** Directly adjacent to the stereo inputs (rear panel) there are four channels of mono inputs. On these four channels, there is a combo line/mic input jack. The line input accepts a 1/4" balanced (TRS) input or 6.3 mm plug.



In situations where the preamp circuitry is not needed, the Insert Return can be used as the channel's input, such as when using an expensive, outboard tube mic preamp, for example.

In these cases, the Tip contact of the plug should not be connected. The signal from the external pre-amp should feed the Ring contact (the Sleeve contact is the ground return).



## automix

The automix option is comprised of a set of eight mono channels that have automatic gain-shared mixing capability. The circuitry determines which input is the loudest and gives it dominance in the mix by reducing the level of other assigned inputs, based on their individual instantaneous levels. Adding priority will cause a channel to dominate, even if its level is lower than others. Also included is an adjustable threshold, soft knee compressor with gain reduction metering that functions without affecting the automatic mixing priorities (patent applied for).

### A compressor threshold

This control sets the point at which the soft-knee compression begins. The status of this knob does not affect the the priority status of the channel when the automix feature is engaged.

### B meter

This meter array indicates the amount of gain reduction activity.

### C priority

This switch provides added weight to a speaker or performer, by elevating the input above other automix inputs.

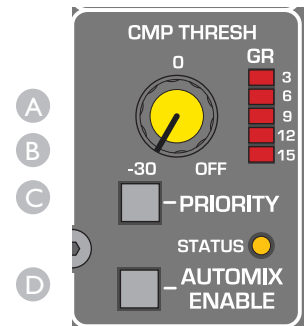
When this button is in the “IN” position, priority is automatically given to this channel over others that are not pressed “IN” by signaling the automix circuitry that the input signal is louder than it actually is.

### D automix enable

This button places the channel in the automix function.

When button is in the “OUT” position, the channel operates as any other mono channel with the exception of compression.

When button is in the “IN” position, the channel is operating in the automix function, regardless of bus assignment.



**NOTE:** To avoid possible transient noise, channels should be muted prior to engaging the automix function.

# stereo input - options 5

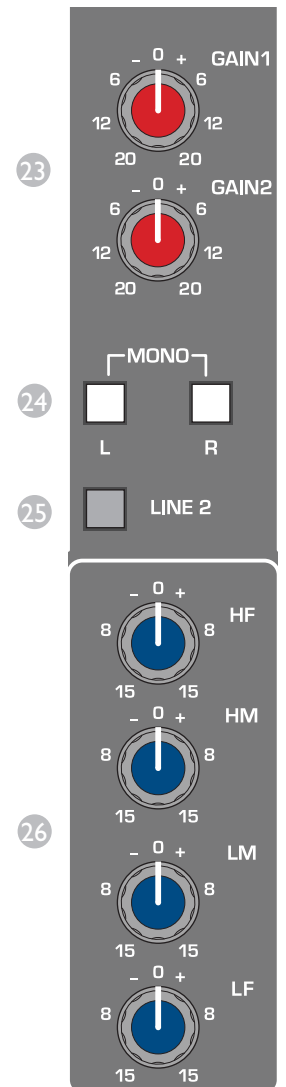
- 23 **gain 1 & 2** - These controls adjust the input gains of the two selectable inputs (TRS and RCA). Both Left and Right circuits are simultaneously adjusted. Unity gain is at the mid-point (with a detent), min and max gain adjust is 20dB. The stereo inputs were designed for line-level sources and can accommodate a wide range of input levels. Use the appropriate input when patching-in your external gear. For most semi-Pro or Pro outboard gear with balanced output jacks, use Stereo Line input 1. The TRS input jacks accept balanced or unbalanced sources. Use an adapter plug or cable to patch-in XLR gear. For semi-Pro or consumer equipment with RCA output jacks, use Stereo Line input 2.
- 24 **left, right and mono switches** - These buttons determine which signal(s) will be routed to the main buses, subgroup buses or post fader aux sends. The Pre-Fader Source (27) determines the source for the pre-fader aux sends.
- both in the “OUT” position** — true stereo signal passes through.  
**left button only in the “IN” position** — only the left signal passes through.  
**right button only in the “IN” position** — only the right signal passes through.  
**both in the “IN” position**— a summed left and right mono signal passes through.
- 25 **line 2 switch** - This button selects which inputs are active (Line 1 or Line 2 Inputs). By depressing this switch (“IN” position), line input 2 becomes active.

## EQ features

Many audio signals coming into the console require some degree of corrective equalization in order to be part of a good sounding mix.

Each Stereo Input is equipped with a fixed-frequency, four-band EQ. The HF and LF bands have a shelving response. The HM band is bell-shaped, centered at 4kHz. The LM band is centered at 250Hz. The EQ circuitry is always in the signal path. Set all EQ controls to “0” (flat) if no equalization is desired.

- 26 **high frequency**— HF 15dB boost and cut at 10kHz — Shelving Response  
**high mid frequency**— HM 15dB boost and cut centered at the 4kHz, Q of 1.5  
**low mid frequency**— LF 15dB boost and cut centered at the 250Hz, Q of 1.5  
**low frequency**— LF 15dB boost and cut at 80Hz — Shelving Response

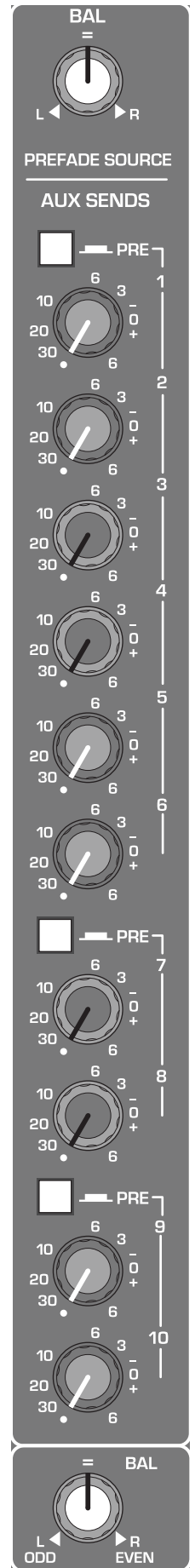


# 5 stereo inputs

## aux send features

Ten aux sends are available for creating individual output mixes from the Stereo Inputs. These mixes can be used for driving effects processors, providing monitor mixes, creating broadcast or alternate sound reinforcement mixes, or other special requirements. When in the default post fader configuration, the signal is an equal sum of the Left and Right stereo signals. When set to PRE, the AUX source is taken from the output of the PREFADE SOURCE control, allowing adjustment of the left-right blend. The Aux sends are always affected by the Mute switch.

- 27 **pre fade source** - This control is similar to the left - right mono switches, but only affects the pre fade aux sends. This control allows a continous blended adjustment that is sent to the aux sends when they are in the "pre" position. This is useful if a split-accompaniment track is played with vocals on one track. The pre fade source controls the mix of vocals added to the monitors to assist the performer(s).
- 28 **PRE switch** - When this switch is in the "OUT" position, the Aux sends are an equal mix of the left and right signals taken Post-fader. When the switch is depressed ("IN"), the Aux sends become Pre-fader, Post-EQ with the left right mix set by the Prefade source control. NOTE: The HPW offers three seperate controls to offer the most flexibility. Each PRE Switch controls the Aux Sends directly below the switch (Aux Sends 1-6, 7-8 and 9-10).
- 29 **aux sends (1-10)** - These knobs adjust the amount of signal sent to the corresponding Aux buses. Unity gain occurs at the zero setting, with 6dB additional gain available above that.
- 30 **bal** - This control determines the signal's left-right balance with respect to the assigned L/R and Group buses. Rotating the control counterclockwise increases the amount of the left signal sent to the L and odd-numbered groups; rotating clockwise increases the amount sent to the R and even-numbered groups. For example, with the channel Bus Assign switch set to Groups 1/2 and the balance control set to the "=" position, rotating the control counterclockwise increases the amount of signal sent to Group 1, while rotating clockwise increases the amount sent to Group 2. The "=" position is balanced and sends identical outputs signals.



## channel muting features

- 31 **mute** - Pressing this switch mutes the stereo feed to any of the assigned buses and any Aux sends. The mute is part of the mute scene programmable function and behaves just as the mutes in the mono channels do.
- 32 **mute LED** - The associated red-LED illuminates when the stereo channel is muted.

## bus assignment features

The bus assignment section offers considerable flexibility in creating what eventually becomes the main output mix. Stereo Inputs can be assigned to the independent Mono bus, the Left-Right buses, or any of the odd-even paired subgroups (1-2, 3-4, 5-6, 7-8). All assignments are derived post-fader, post-eq, and post-mute. Since these are stereo inputs, the assignments are done in stereo: the left side input signal is assigned to the left and odd buses, while the right-side signal is assigned to the right and even buses. The Mono bus is fed from a summed mix of the left and right side input sources.

### 33 Bus Assign

**M (Mono)** - Assigns the summed, post-fader channel signal to the Mono Bus. The pan-pot position does not affect the signal to the Mono bus.

**L-R (Left - Right)** - Assigns the post-fader, pan-pot signals to the Left and Right Buses.

**1-2 (Groups 1-2)** - Assigns the post-fader, pan-pot signals to the Group 1 and Group 2 Buses.

**3-4 (Groups 3-4)** - Assigns the post-fader, pan-pot signals to the Group 3 and Group 4 Buses.

**5-6 (Groups 5-6)** - Assigns the post-fader, pan-pot signals to the Group 5 and Group 6 Buses.

**7-8 (Groups 7-8)** - Assigns the post-fader, pan-pot signals to the Group 7 and Group 8 Buses.

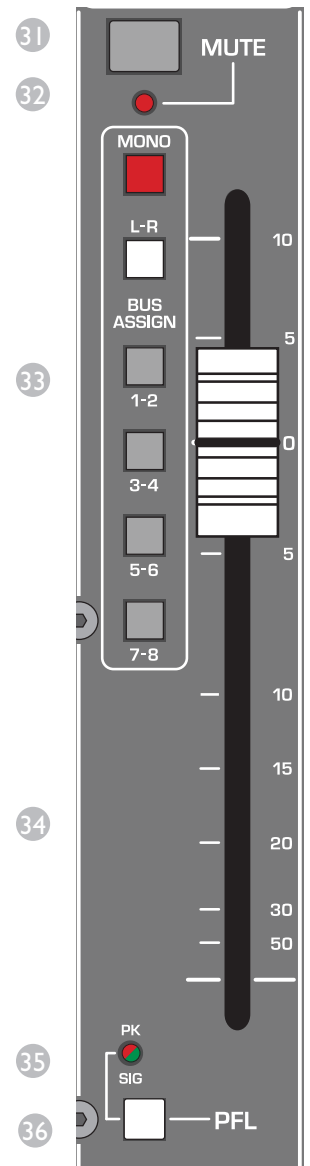
- 34 **stereo fader** - The stereo inputs are provided with high-quality, 100mm stereo faders. Normal mixing range is around the “0” mark, with up to 10dB fader-boost available when needed.

## signal monitoring features

The stereo inputs are equipped with a bicolor LED that displays the summed, Pre-fader signal level with varying intensity green illumination, and also indicates impending channel overload (within 3dB of clipping) by turning red. Clipping is sensed both pre and post fader; so even if the fader is down, you will be informed of any preamp or EQ related overload problems.

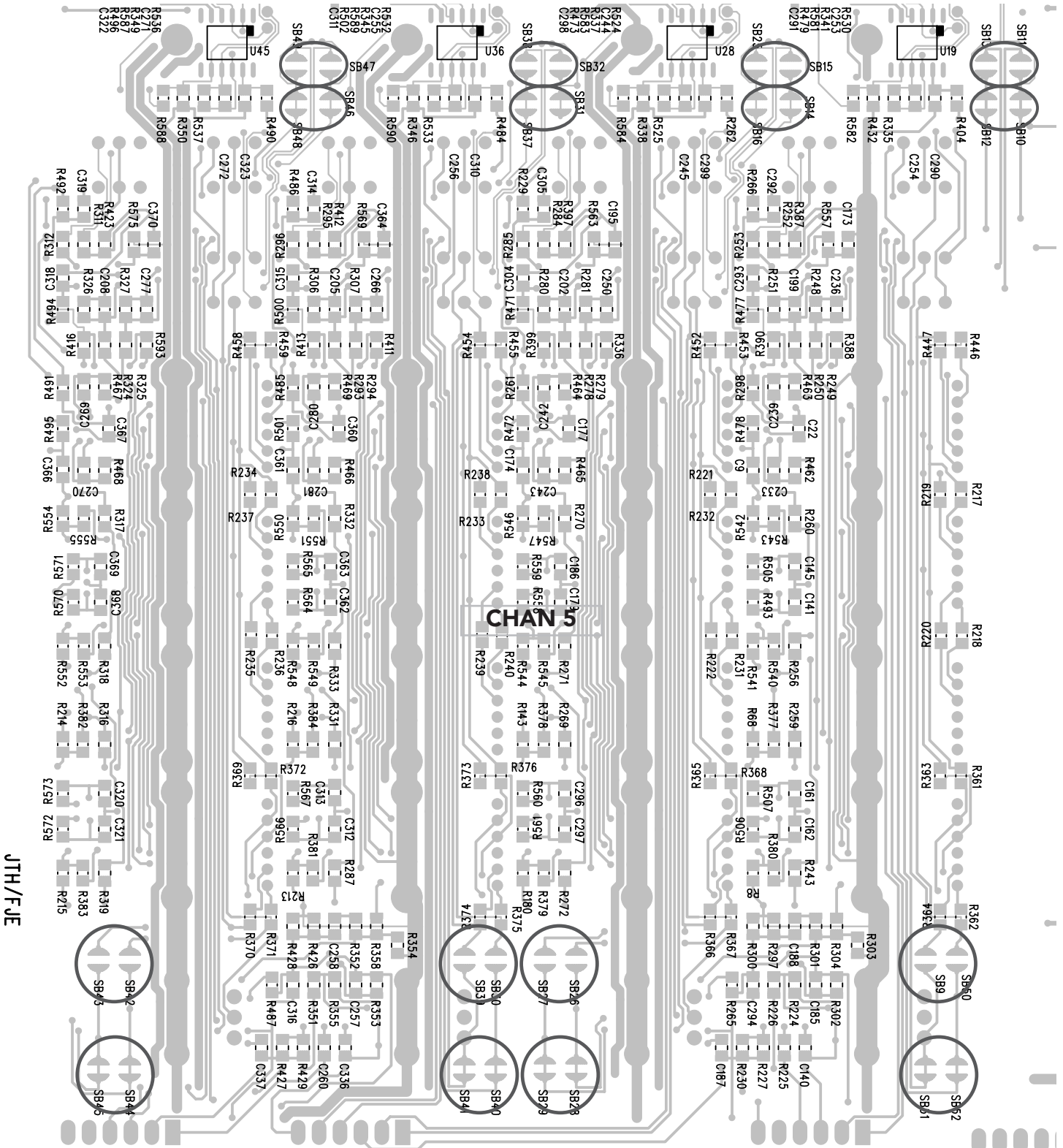
A PFL (Pre-Fader Listen) switch is provided that lets the operator monitor the stereo input signal in the console's Solo system. When depressed, the channel's pre-fader signal is sent to the console's Solo system (See Master section for details on the Solo system functions). The Stereo Inputs are monitored in stereo in the Solo system.

- 35 **PK/Sig LED** - Pre-Fader signal (summed L and R) is shown as varying GREEN intensity. Channel clip warning displays RED.
- 36 **PFL** - When this switch is depressed, the stereo pre-fader signal is sent to the console's Solo system. The channel LED illuminates RED to indicate that the PFL is active.



# 5 stereo input - options

## Solder-Blob locations



JTH/FJE

CHAN 8

CHAN 7

CHAN 6

CHAN 5

HPW Input  
EQ PCB (upper)

## user options

There are a number of user options available for the Stereo inputs. These are implemented by way of solder-pads on the back-side of the Stereo Input circuit boards (upper EQ board of the pair). There are a number of solder-pads available, made up of split-circles of tinned copper. Solder is bridged (blobbed) across the 2 halves to complete the circuit and implement the desired option. For the default setting, there is already a thin copper trace that connects the two halves, completing the default connection. This existing trace **MUST** be cut (use an X-acto knife) before an option is implemented.

To change back to the default operation after an option was performed, remove the blobbed solder from the option solder-pads (use a solder-sucker or solder-wick). Add a blob-link across the original, default pads to replace the thin trace that was previously cut when the option was first performed.

The specified Solder-Blob (SBXX) shown in the table should be linked (by solder-bridging) to complete the circuit and implement the indicated option. The table below shows the specific SBXX for each of the 8 channels on a circuitboard. Before implementing an option (by blobbing), be **SURE** to cut the existing thin copper trace linking the two halves of the default SB. Failure to do so will result in channel operation problems and possible circuit damage.

<b>HPW Stereo Input OPTIONS TABLE</b>					
<b>“PRE” Feed For Aux Sends</b>			<b>Channel Direct Out</b>		
	Post-EQ (Default)	Pre-Insert	Pre EQ	Post-EQ (Default)	Pre-EQ
Chan-1	mono SB2	SB1	SB33	SB18	SB17
Chan-2	mono SB4	SB3	SB34	SB20	SB19
Chan-3	mono SB6	SB5	SB35	SB22	SB21
Chan-4	mono SB8	SB7	SB36	SB24	SB23
	L/R		L/R	L/R	L/R
Chan-5	stereo SB52/SB51		SB50/SB9	SB10/SB12	SB11/SB13
Chan-6	stereo SB28/SB29		SB26/SB27	SB14/SB16	SB15/SB25
Chan-7	stereo SB40/SB41		SB30/SB39	SB31/SB37	SB32/SB38
Chan-8	stereo SB44/SB45		SB42/SB43	SB46/SB48	SB47/SB49

# 5 stereo inputs

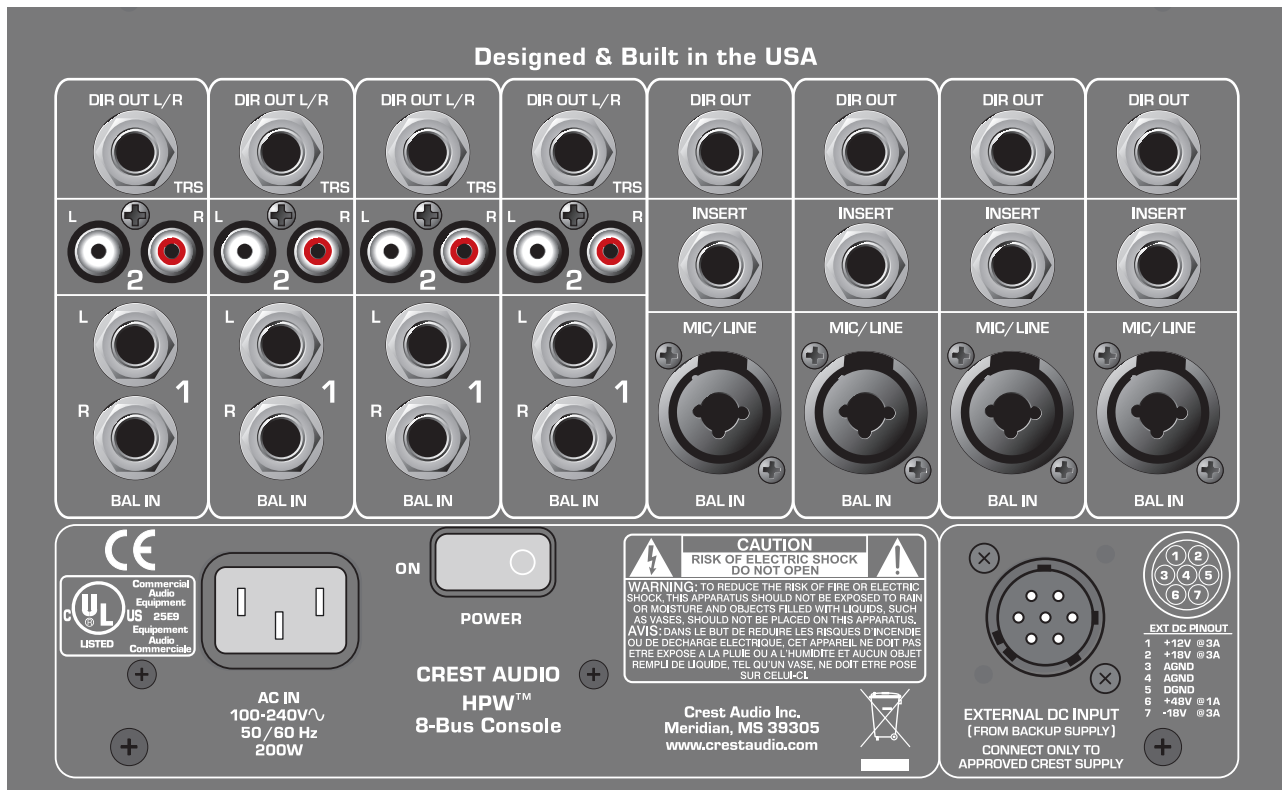
## rear panel connectors

The connectors associated with all the Stereo Inputs are located on the rear panel. Line Input 1 has 1/4" TRS jacks, Line Input 2 has unbalanced RCA inputs. The TRS inputs are balanced and can accept either balanced or unbalanced signals.

**direct out, 1/4" TRS jack** - The input channel's signal is available at this output jack. The default signal routing is derived Pre-fader/Post-EQ. This can be changed by an internal option to Post-insert/Pre-EQ. The output jack is TRS, tip = left, ring = right, sleeve = ground.

**line 2, RCA input jack** - These RCA input connectors are active when Line 2 is selected

**line 1, 1/4" TRS jack** - These 1/4" TRS input connectors can be used for balanced or unbalanced sources and are active when the Line 2 switch is in the "UP" position.

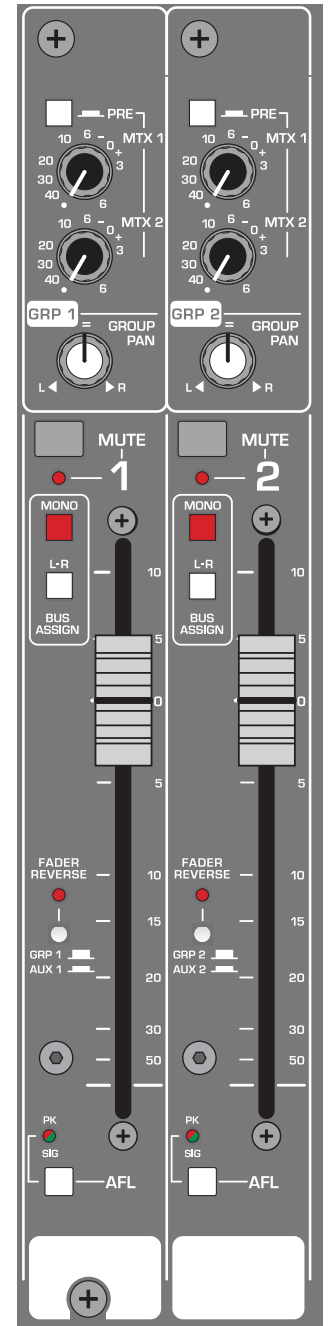




## features

The HPW is equipped with 8 audio subgroups, in addition to the main L/R and Mono mix buses. All of the Inputs (Mono and Stereo) have full assignment capabilities to all 11 of these mix buses. Typically, these 8 groups are used to create sub-mixes within the main program. These sub-mixes are then combined to create the overall mix. The use of groups allows the operator to easily control and modify collections of instruments or voices. Examples include: drum mixes, background vocals, choir microphones, etc. Since the group assignment is done in odd-even pairs (1-2, 3-4, 5-6, 7-8), stereo subgrouping is typically used. Each input channel's pan pot is used to create a stereo sub-mix within an odd-even group pair. After assigning related signals to a pair of groups, specific equalization or compression can be applied to that collection of signals by patching external processing gear into the groups' insert jacks (stereo EQ or compressors are often used). That processed, stereo-group signal can then be assigned to any of the 3 main mix buses (L/R/Mono) via the group's bus assignment switches, to create the final mix. The feed to the L-R buses is Post-fader; Post-mute through the Group Pan-Pot, the assignment to the Mono bus is Post-fader; Post mute; the Pan-Pot is not involved.

- 38 **Group Pan Pot**  
This control determines the group's placement in the L-R stereo sound field. The control only functions when the group is assigned to the L-R bus. It always has the group signal and is unaffected by the fader reverse switch.
- 39 **Mute Switch w/LED**  
This switch normally will mute the post-fader output of the audio group. The LED will illuminate when the mute is active. If the FADER REVERSE switch is depressed, then this mute switch will affect the associated Aux output (See Fader reverse description). Note: This mute is NOT part of the programmable mute scene system
- 40 **Mono Bus Assign**  
The output of the Group feeds the Mono bus when this switch is depressed. The feed to the Mono bus is post-fader, post-mute.
- 41 **L-R Bus Assign**  
The output of the Group feeds the L and R main buses when this switch is depressed. The Group Pan pot controls the L-R position. The feed to the L and R buses is post-fader, post-mute.
- 42 **100mm Fader** - This high-quality, 100mm fader is used to control the Group output level. Any Post-fader feeds are affected by this control. Nominal position is at the "0" mark, with 10dB additional gain available above that point. When the FADER REVERSE switch is depressed, this fader will control the associated Aux output level, and the Group output level is then controlled by the Aux Level rotary pot (See Fader reverse description following).





## group monitoring features

Within this Group section, the 100mm fader is normally in the Group audio path. This can be changed with the use of the Fader-Reverse switch. When the Fader-Reverse switch is depressed, the corresponding Aux output is controlled by the 100mm fader (the Group output is then controlled by the corresponding Aux rotary pot). Since the actual signal at the fader can be either the Group or Aux mix, the PK/Sig LED and AFL switches will monitor whichever signal is at the fader. In the following text, the uppercase FADER represents this signal.

**NOTE:** These following controls are ALWAYS fed from the Group audio signal, the Fader-Reverse switch does not affect their function.

**Matrix Sends M1 and M2:** Always fed from post-level/post-mute Group audio, or in PRE position, from the post-insert/pre-level/pre-mute Group audio.

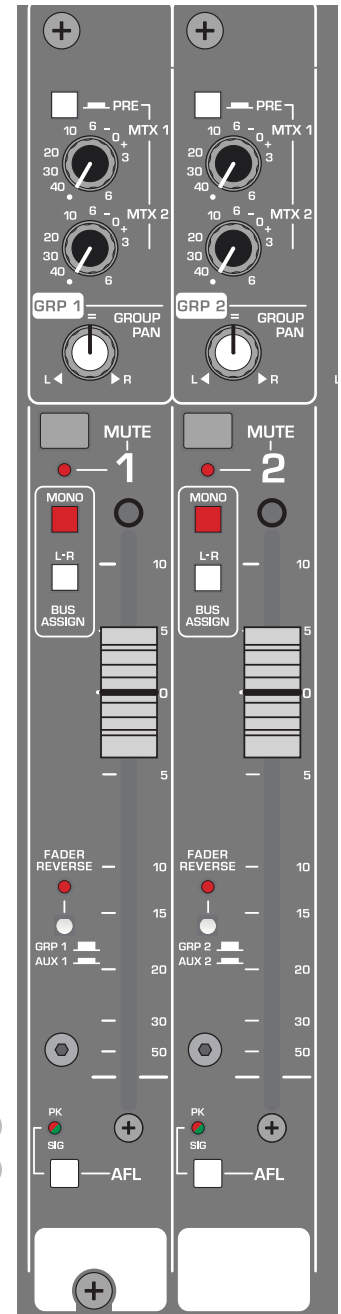
**Group Pan:** Always fed from the post-level/post-mute Group audio.

**Bus Assignment Mono and L-R:** Always fed from the post-level/post-mute Group audio.

See next page for Fader-Reverse information

See Matrix section for further matrix information

- 43 **PK/Sig LED** - The FADER is equipped with a bicolor LED that displays the Pre-fader signal level with varying intensity green illumination, and also indicates impending group overload (within 3dB of clipping) by turning red. Group clipping is sensed both pre- and post-fader, so even if the fader is down, you will be informed of any bus-related overload problems.
- 44 **AFL** - An AFL (After-Fader Listen) switch is provided, which allows the operator to monitor the FADER's signal in the console's Solo system. When depressed, the FADER's post-fader, post-mute signal is sent to the console's Solo system (See Master section for details on the Solo system functions).



## fader-reverse function

### using the HPW as a monitor console

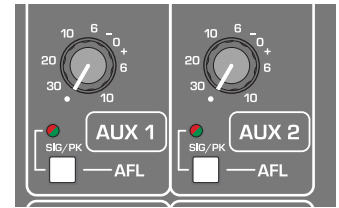
Because of its 10 Aux sends, the HPW can be used as a 10-output Monitor mixer. Each input channel can access all of the individual Aux mixes, allowing 10 unique mixes to be generated. Normally, the output level of each of these Aux mixes is controlled by the corresponding Aux Master rotary level pot. In situations where the HPW is to be used as a dedicated Monitor Mixer, the 100mm faders can be switched-over to control the Aux outputs instead of the rotary controls by use of the Fader-Reverse switch. Other controls, associated with monitoring the signals, also change functions when this switch is used.

**NOTE:** These following controls are ALWAYS fed from the Group audio signal, the Fader-Reverse switch does not affect their function.

**Matrix Sends M1 and M2:** Always fed from post-level/post-mute Group audio, or in PRE position, from the post-insert/pre-level/pre-mute Group audio.

**Group Pan:** Always fed from the post-level/post-mute Group audio.

**Bus Assignment Mono and L-R:** Always fed from the post-level/post-mute Group audio.



### 45 fader reverse w/LED

When this switch is up (LED Off), the following controls perform these listed functions:

**Mute (w/Led):** Mutes the Post-fader Group output

**100mm Fader:** Controls the Group output level

**Lower AFL switch (below fader):** Monitors the Group level via the Solo system

**Upper Rotary pot::** Controls the Aux output level

**Upper AFL switch:** Monitors the Aux level via the Solo system

When this switch is down (LED On), the following controls perform these listed functions:

**Mute (w/Led):** Mutes the Post-fader Aux output

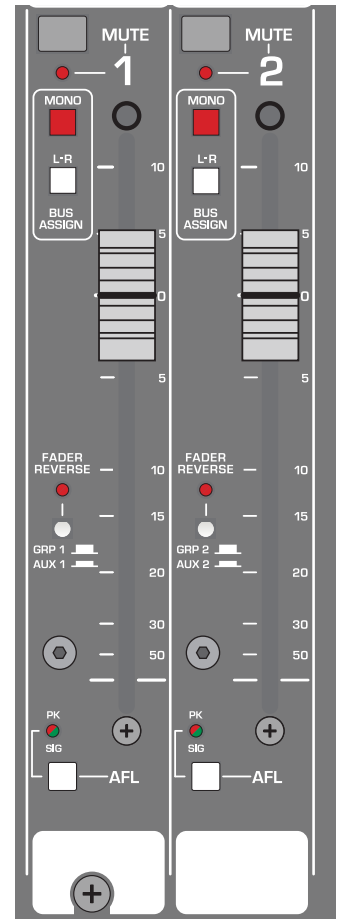
**100mm Fader:** Controls the Aux output level

**Lower AFL switch (below fader):** Monitors the Aux level via the Solo system

**Upper Rotary pot::** Controls the Group output level

**Upper AFL switch:** Monitors the Group level via the Solo system

The overall purpose of this reverse switch is to give the operator easier access to the Aux level and control functions. It shifts the Aux controls to the lower, fader-area of the module when used as a Monitor console. The Group controls are shifted to the upper-rotary area, since the assignable Groups are not often used in a Monitor console.



Use the Fader-Reverse switches whenever it is beneficial to have an Aux level control on a fader. These switches can be used individually (if only 1 Aux needs to be controlled), or all can be switched when a full Monitor Console function is desired.



## group mixing features

After using the groups to create the desired sub-mixes, you typically want to route and combine them with other signals or groups to create various output mixes. These mixes can be your final house mix (L/R/Mono), a special mix for a choir or vestibule area, or an additional feed tailored specifically for a video or TV broadcast.

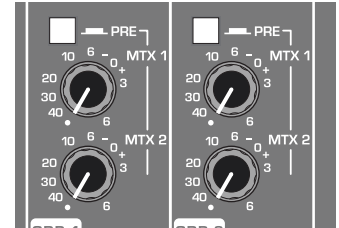
The two main methods for creating these additional mixes are:

- 1) The bus assignment switches (in conjunction with the Group Pan pot)
- 2) The Matrix Sends

The bus assignment switches take the post-fader/post-mute group signal and routes it to the 3 main output buses. The feed to the L-R buses is always through the Group Pan pot. The feed to the Mono bus does not depend on that pan pot.

Use the Matrix Sends to create additional mixes from the 11 main buses (8 Groups, Left, Right and Mono). These additional mixes can be tailored to suit a specific need. Mix-in the signals you need, or enhance the main-mix, by adding additional instruments where needed.

**46 The Matrix Send** - These controls allow the user to mix the post-fader/post-mute group signal with other groups and/or the 3 main output mixes. If the PRE button is pressed, the signal to the Matrix Sends is pre-fader/pre-mute. This allows a totally independent output mix to be created, and the group fader level will not affect the Matrix mix. The overall level of the entire Matrix mix is controlled by the Matrix Masters, located at the far right of the Master section. Matrix Sends are always fed from post-level/post-mute Group audio, or in PRE position, from the post-insert/pre-level/pre-mute Group audio.



### See Matrix section for further matrix information

**NOTE:** These following controls are ALWAYS fed from the Group audio signal, the Fader-Reverse switch does not affect their function.

Matrix Sends M1 and M2: Always fed from post-level/post-mute Group audio, or in PRE position, from the post-insert/pre-level/pre-mute Group audio

Group Pan: Always fed from the post-level/post-mute Group audio

Bus Assignment Mono and L-R: Always fed from the post-level/post-mute Group audio

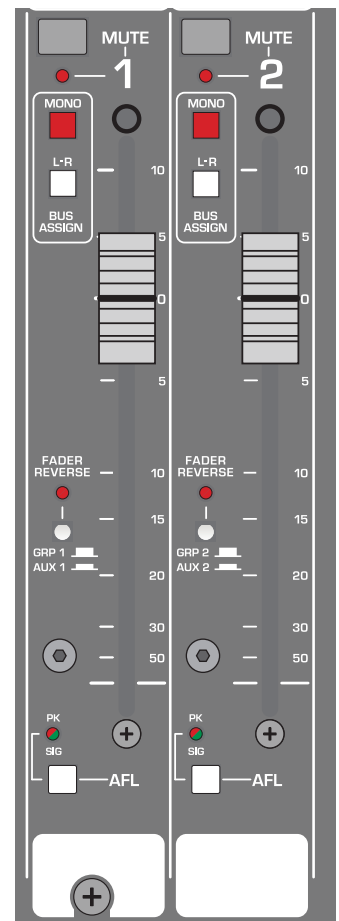
### creating additional mixes

There is yet another way to create additional output mixes from the Console, but it involves using an external mixer (an XR-20 or XRM would be nice). The Groups have their own TRS output jacks that feed the post-fader/post-mute group audio to the outside world. These group outputs can be fed into an external mixer where they can be combined into as many outputs as the external mixer is capable of providing. In effect, you are using the external mixer to create additional "Matrix mixes." Internally, you are limited to the 2 Matrix sends (M1 and M2), but externally,

you no longer have this limit. The main difference is the feed to the matrix sends: internally, you could choose Pre or Post; externally (using the Group-Out TRS jack), you only have Post available. However, the Group Insert jack can be used to derive a pre-fader signal for use with an external mixer

if the Tip and Ring contacts are tied together in the cable plug. This creates a "borrow-cable" that allows the signal to still flow through the internal audio path of the group, but allows the pre-fader, insert-send signal to be used as an external feed.

If you need more than the internal two-matrix mix, you can use the outputs of the console to create additional mixes externally. Use the 11 main buses (8 Groups, Left, Right and Mono), plus any of the 10 Auxes. These additional mixes can be tailored to suit a specific need; only mix-in the signals you need, or enhance the main-mix by adding additional instruments or vocals where needed.



## group connectors- rear panel

The HPW group output connections are located on the Master rear output panel. Each group features a 1/4" TRS output connector, along with a 1/4" TRS Insert connector. The output is a ground-compensated, impedance-balanced TRS jack. For wiring purposes, treat this connector exactly like a balanced output. When connected to an unbalanced input, the ground-compensation circuitry will act to reduce the ground-signal differences between the console and the remote gear.

The TRS Insert jack is wired as Tip=Send, Ring=Return, Sleeve= Audio Ground. This is the "industry-standard" wiring scheme for most single-jack inserts. The Insert send-point is located directly after the group mix amp, the Insert return feeds the top of the group fader, or the top of the level pot if Fader-Reverse is active (see Block Diagram).

### 47 group output 1/4" TRS jack

The group output signal is available at this output jack. The output jack is impedance-balanced, ground-compensated.

- Tip is +Drive, Ring is -Drive Return, Sleeve is Chassis Ground
- Send (Drive) impedance is 50Ω
- Ring impedance is 50Ω to Audio Ground
- Nominal Operating Level= +4dBu
- Max Output Level= +21 dBu (into 2kΩ or higher)

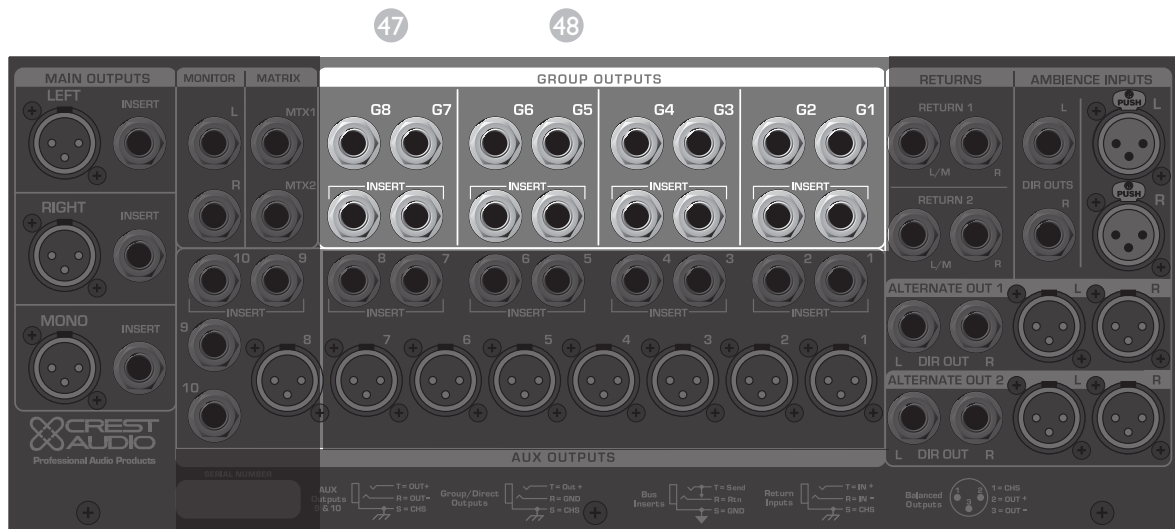
### 48 insert jack 1/4" TRS jack

This switching 1/4" TRS jack allows an external signal processor to be inserted into the signal path of the group. The tip carries the SEND signal from the group, and the ring carries the RETURN signal back to the group. The Insert-Send point is located directly after the group mix amp, the Return comes back at the top of the group level control.

- Tip is Send, Ring is Return, Sleeve is Audio Ground.
- Send (output) impedance is 50Ω
- Return (input) impedance is 5KΩ
- Nominal Operating Level= -2dBu

**NOTE:** The Fader-Reverse switch does not change the function of any of the rear-panel jacks. The Group Output and Insert jacks are always located here. Similarly, the Aux Output and Insert jacks always retain their same function.

**NOTE:** To avoid any degradation of the HPW's group signal, any processing gear patched into the group insert jack should have a low impedance output (<100Ω) and must be capable of cleanly driving a 2KΩ load to +21 dBu.

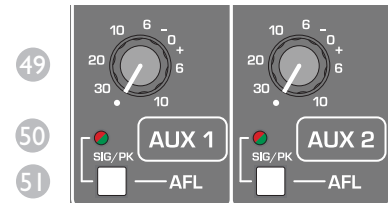


## auxes (auxiliary mixes)

Ten Aux buses are available for creating individual output mixes from the Input channels of the Console. These mixes can be used for driving effects processors, providing monitor mixes, creating broadcast or alternate sound reinforcement mixes, or other special requirements. The Aux buses are fed from the Aux Send controls on the Mono Inputs, Stereo Inputs, Stereo Returns and the Ambience Input. Pre and Post switches are available for these send pots, along with internal options to allow the user to configure the Aux mixes in a variety of ways.

### 49 aux master level

This rotary pot is used to control the Aux output level. Nominal position is at the “0” mark, with 10dB additional gain available above that point. When the FADER-REVERSE switch is depressed (located next to the 100mm fader), this rotary pot will instead control the associated Group Output level, and the Aux Output level is then controlled by the 100mm fader (see Fader Reverse description on Pg 36).



### aux monitoring

The following controls are used to check the signal level and status of the Aux mix. These controls monitor the audio signal present at the rotary pot.

Normally, this is the Aux bus signal, but if the FaderReverse switch is depressed, these same controls will monitor the Group signal, and the Aux bus will be monitored by the corresponding Fader-related controls.

### 50 PK/Sig LED

A bicolor LED displays the Pre-level signal with varying intensity green illumination, and also indicates impending bus overload (within 3dB of clipping) by turning red. Clipping is sensed both pre- and post- level control, so even if the control is turned down, you will be informed of any bus-related overload problems.

### 51 AFL

An AFL (After-Fader Listen) switch is provided that lets the operator monitor the signal in the console’s Solo system. When depressed, the post-fader, post-mute signal is sent to the console’s Solo system (see Master section for details on the Solo system functions).


## aux connectors-rear panel

The HPW Aux output connections are located on the Master rear output panel. All of the auxiliary outputs are fully balanced with auxes 1-8 featuring XLR connectors and auxes 9 and 10 having 1/4" TRS connectors. All 10 auxes also have TRS inserts. The TRS Insert jack is wired as Tip=Send, Ring=Return, Sleeve= Audio Ground. This is the "industry-standard" wiring scheme for most single-jack inserts. The Insert send-point is located directly after the aux mix amp. The Insert return feeds the top of the level pot, or the top of the 100mm fader if Fader-Reverse is active (see Block Diagram).

### 52 aux output 1/4" TRS and male XLR jacks

The aux output signal is available at this output jack. The output is fully balanced.

Tip positive, Ring negative, Sleeve is Chassis Ground  
 Outputs 1-8 XLR Balanced, 9-10 TRS Balanced  
 Nominal Operating Level= +4dBu  
 Max Output Level= +26dBu (into 2kΩ or higher)

**NOTE:** The Fader-Reverse switch  does not change the function of any of the rear-panel jacks. The Aux Output and Insert jacks are always located here. Similarly, the Group Output and Insert jacks always retain their same function.

### 53 insert jack 1/4" TRS jack

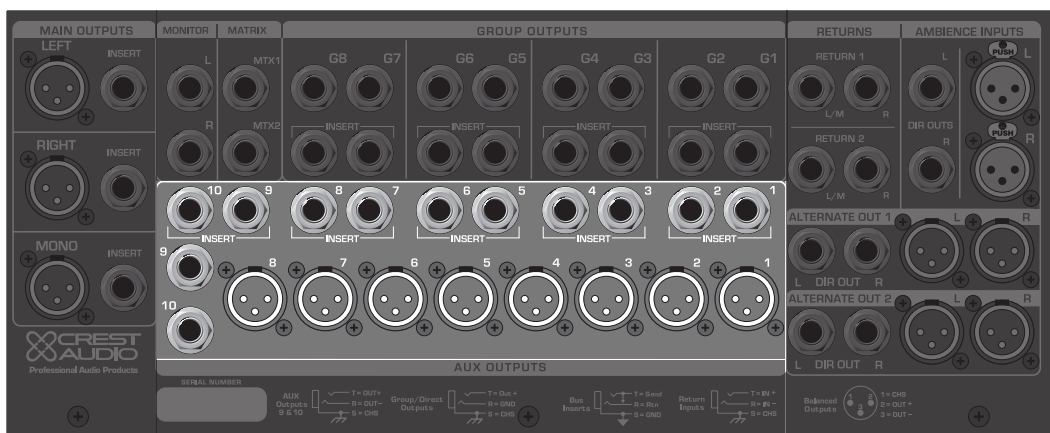
This switching 1/4" TRS jack allows an external signal processor to be inserted into the signal path of the aux bus. The tip carries the SEND signal from the aux, and the ring carries the RETURN signal back to the aux. The Insert-Send point is located directly after the aux mix amp, the Return comes back at the top of the aux level control. Tip is Send; Ring is Return; Sleeve is Audio Ground.

Send (output) impedance is 50Ω  
 Return (input) impedance is 5KΩ  
 Nominal Operating Level= -2dBu

**NOTE:** To avoid any degradation of the HPW's aux signal, any processing gear patched into the insert jack should have a low impedance output (<100Ω) and must be capable of cleanly driving a 2KΩ load to +21dBu.

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53



## left and right (main audio buses)

### features

The HPW is equipped with 3 main audio buses in addition to the 8 audio subgroups. This section of the manual deals with 2 of those 3 main buses - Left and Right, and the Mono bus will be described later. The assignment to the L-R buses is always through a pan-pot, either from the Mono or Stereo input channels, or from the 8 audio subgroups. Typically, these 2 main buses are used to create the overall stereo mix.

#### 54 mute switch w/LED

This switch normally will mute the post-fader output of the L or R audio bus. The LED will illuminate when the mute is active. If the FADER REVERSE switch is depressed, then this mute switch will affect the associated Aux output (See Fader Reverse description). NOTE: These mute switches are NOT part of the programmable mute scenes.

#### 55 mono bus assign

The output of the Left or Right feeds the Mono bus when this switch is depressed. The feed to the Mono bus is post-fader, post-mute.

#### 56 100mm fader

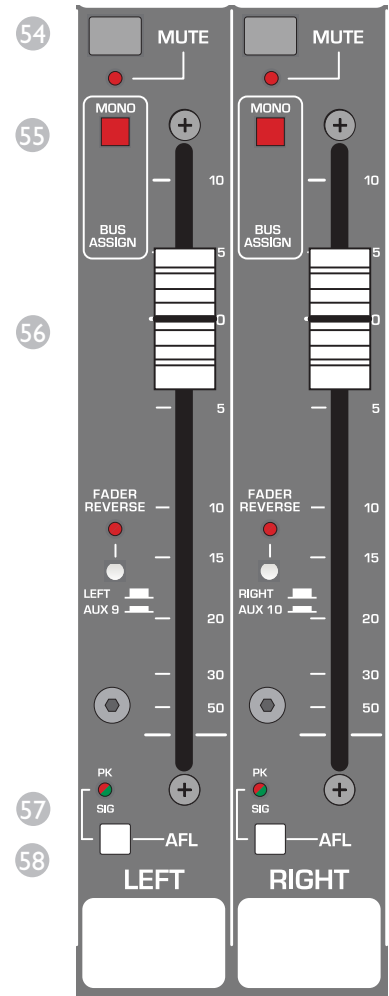
This high-quality, 100mm fader is used to control the main output level. Any Post-fader feeds are affected by this control. Nominal position is at the "0" mark, with 10dB additional gain available above that point. When the FADER REVERSE switch is depressed, this fader will control the associated Aux Output level, and the Main Output level is then controlled by the Aux Level rotary pot (see the following Fader Reverse description).

#### 57 PK/Sig LED

The FADER is equipped with a bicolor LED that displays the Pre-fader signal level with varying intensity green illumination, and also indicates impending group overload (within 3dB of clipping) by turning red. Audio clipping is sensed both pre- and post-fader, so even if the fader is down, you will be informed of any bus-related overload problems.

#### 58 AFL

An AFL (After-Fader Listen) switch is provided that lets the operator monitor the FADER's signal in the console's Solo system. When depressed, the FADER's post-fader, post-mute signal sent to the console's Solo system (See Master section for details on the Solo system functions).





## fader-reverse function

### using the HPW as a monitor console

Because of its 10 Aux sends, the HPW can be used as a 10-output Monitor mixer. Each input channel can access all of the individual Aux mixes, allowing 10 unique mixes to be generated. Normally, the output level of each of these Aux mixes is controlled by the corresponding Aux Master rotary level pot. In situations where the HPW is to be used as a dedicated Monitor Mixer, the 100mm faders can be switched-over to control the Aux outputs instead of the rotary controls by use of the Fader-Reverse switch (you will need to use a small tool in order to access the fader-reverse switch). Other controls associated with monitoring the signals also change functions when this switch is used.

NOTE: These following controls are ALWAYS fed from the L-R main audio signal. The Fader-Reverse switch does not affect their function.

Matrix Sends M1 and M2: Always fed from post-level/post-mute main audio, or in PRE position, from the post-insert/pre-level/pre-mute main audio.

Bus Assignment Mono: Always fed from the post-level/post-mute main audio.

The **Matrix Send** pots allow the user to mix the post-fader/post-mute main signal with the other 2 main outputs, plus the 8 groups. If the PRE button is pressed, the signal to the Matrix Send pots is pre-fader/pre-mute. This allows a totally independent output mix to be created. The main fader level will not affect the Matrix mix. The overall level of the entire Matrix mix is controlled by the Matrix Masters, located at the far right of the Master section.

### See Matrix section for further matrix information

### 59 fader reverse w/LED

When this switch is "UP" (LED Off), the following controls perform these listed functions:

Mute (w/Led): Mutes the Post-fader main output

100mm Fader: Controls the main audio output level

Lower AFL switch (below fader): Monitors the main audio level via the Solo system

Upper Rotary pot: Controls the Aux output level

Upper AFL switch: Monitors the Aux level via the Solo system

When this switch is down (LED On), the following controls perform these listed functions:

Mute (w/Led): Mutes the Post-fader Aux (9 or 10) output

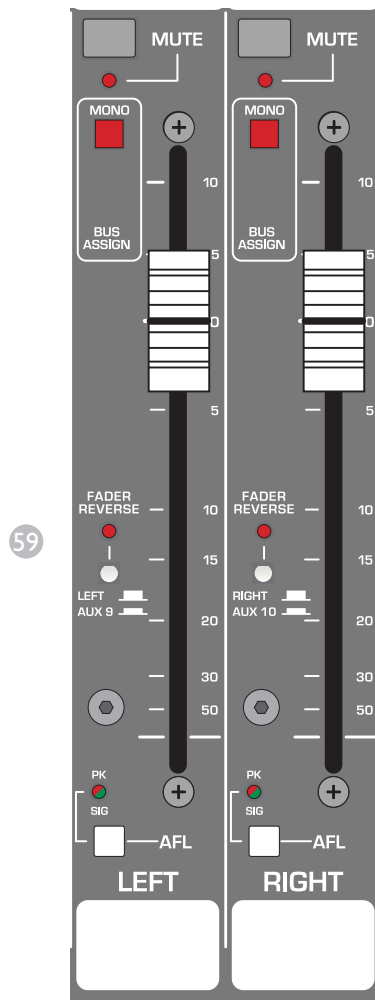
100mm Fader: Controls the Aux output level

Lower AFL switch (below fader): Monitors the Aux level via the Solo system

Upper Rotary pot: Controls the main (L or R) output level

Upper AFL switch: Monitors the audio level via the Solo system

The overall purpose of this reverse switch is to give the operator easier access to the Aux level and control functions. It shifts the Aux controls to the lower, fader-area of the module when used as a Monitor console. The main audio controls are shifted to the upper-rotary area.



Use the Fader-Reverse switches whenever it is beneficial to have an Aux level control on a fader. These switches can be used individually (if only 1 Aux needs to be controlled), or all can be switched when a full Monitor Console function is desired.



## mono (main audio bus)

### features

The HPW is equipped with 3 main audio buses in addition to the 8 audio subgroups. This section of the manual deals with 1 of those 3 main buses - the Mono bus. The Mono bus is directly assignable from all of the Mono and Stereo Inputs, the 8 audio subgroups and the L-R main buses.

Since the Mono bus is directly-assignable from all input sources, and not a derived, summed L-R mix, a variety of uses are possible: Center-cluster feed in a L-C-R church install, subwoofer feed - assign only the appropriate, low-frequency sources to the bus, or use it to sum the L-R mixes to create a mono mix.

**The Matrix Send** pots allow the user to mix the post-fader/post-mute Mono signal with the other 2 main outputs, plus the 8 groups. If the PRE button is pressed, the signal to the Matrix Send pots is pre-fader/pre-mute. This allows a totally independent output mix to be created. The main fader level will not affect the Matrix mix. The overall level of the entire Matrix mix is controlled by the Matrix Masters, located at the far right of the Master section.

**See Matrix section for further matrix information**

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### Mute Switch w/LED

This switch will mute the post-fader output of the Mono audio bus. The LED will illuminate when the mute is active. **NOTE:** These mute switches are **NOT** part of the programmable mute scenes.

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### 100mm Fader

This high-quality, 100mm fader is used to control the main output level. Any Post-fader feeds are affected by this control. Nominal position is at the "0" mark, with 10dB additional gain available above that point.

64

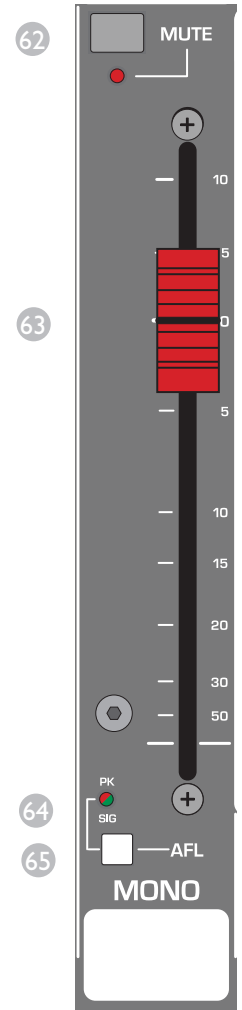
### PK/Sig LED

The FADER is equipped with a bicolor LED that displays the Pre-fader signal level with varying intensity green illumination, and also indicates impending audio overload (within 3dB of clipping) by turning red. Audio clipping is sensed both pre- and post-fader, so even if the fader is down, you will be informed of any bus-related overload problems.

65

### AFL

An AFL (After-Fader Listen) switch is provided that lets the operator monitor the audio signal in the console's Solo system. When depressed, the Mono's post-fader, post-mute signal sent to the console's Solo system (See Master section for details on the Solo system functions).



All Mono and Stereo Inputs, along with the 8 groups and L-R, can be directly assigned to the Mono bus. 💡

Use the Matrix Sends to create additional mixes from the 11 main buses (8 Groups, Left, Right and Mono). These additional mixes can be tailored to suit a specific need. Mix-in the signals you need or enhance the main-mix by adding additional instruments where needed. 💡

# 9 left - right, mono output

## L/R and mono connectors- rear panel

The HPW Mono output connections are located on the Master rear output panel. The output features a male XLR output connector, along with a 1/4" TRS Insert connector. The output is a servo balanced XLR jack.

The TRS Insert jack is wired as Tip=Send, Ring=Return, Sleeve= Audio Ground. This is the "industry-standard" wiring scheme for most single-jack inserts. The Insert send-point is located directly after the main mix amp. The Insert return feeds the top of the 100mm fader.

### 66 main Mono output - male XLR jack

The main output signal is available at this output jack.

Pin2 is +Drive, Pin3 is -Drive, Pin1 is Chassis Ground

Drive impedance is (50Ω each leg)

Nominal Operating Level= +4dBu

Max Output Level= +26dBu (into 2kΩ or higher)

### 67 insert jack 1/4" TRS jack

This switching 1/4" TRS jack allows an external signal processor to be inserted into the signal path of the main audio bus. The tip carries the SEND signal from the bus, and the ring carries the RETURN signal back to the aux. The Insert-Send point is located directly after the main mix amp. The Return comes back at the top of the main level control.

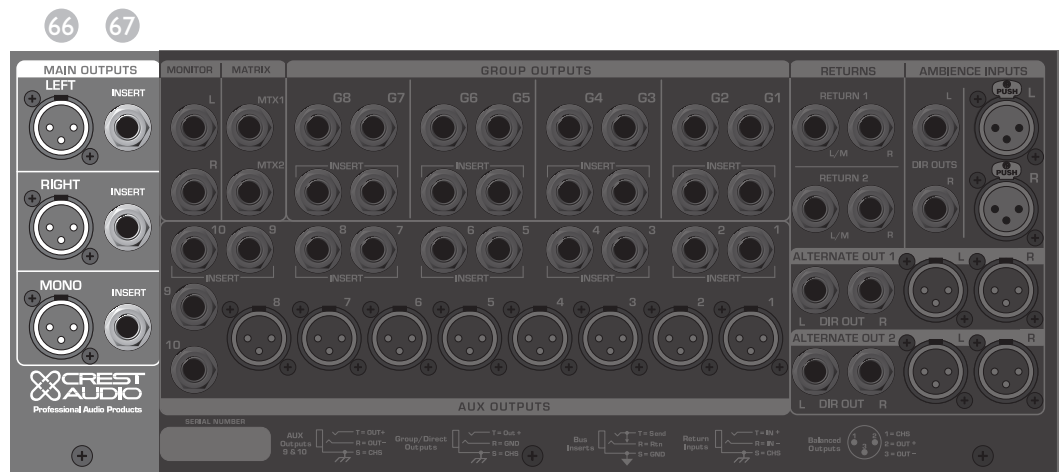
Tip is Send, Ring is Return, Sleeve is Audio Ground.

Send (output) impedance is 50Ω

Return (input) impedance is 5KΩ

Nominal Operating Level= -2dBu

**NOTE:** To avoid any degradation of the HPW's signal path, any processing gear patched into the insert jack should have a low impedance output (<100Ω) and must be capable of cleanly driving a 2KΩ load to +21dBu.



## matrix mix

The HPW features a 2-output Matrix section. Each Matrix can consist of a mixture of any of the 11 main mix buses: the 8 audio subgroups, Left, Right, and Mono. Each of these main buses feed the 2 matrix buses through individual Matrix Send pots, all located within the Master module, above the fader of the associated bus. These Sends were described in each of the previous sections describing the various buses.

Each Matrix mix can be used to create a unique combination of the various sub-mixes within the console. Pre- or Post-fader mixes are possible with the use of the PRE switches associated with the Matrix Send pots of each of the buses. The matrix outputs can be tailored to create the proper mix needed for each application. Typical uses are to create a vocal-rich feed for a video recording, a lower-level feed for the vestibule or waiting room, a room-independent mix for a performance video, etc.

### 68 matrix output 1/4" TRS jack

The matrix output signal is available at this output jack. The jack is impedance-balanced, ground-compensated. The matrix outputs can also be used as the source for the Alt outputs. This allows the dynamic range to be controlled and room ambience to be added to the matrix signal.

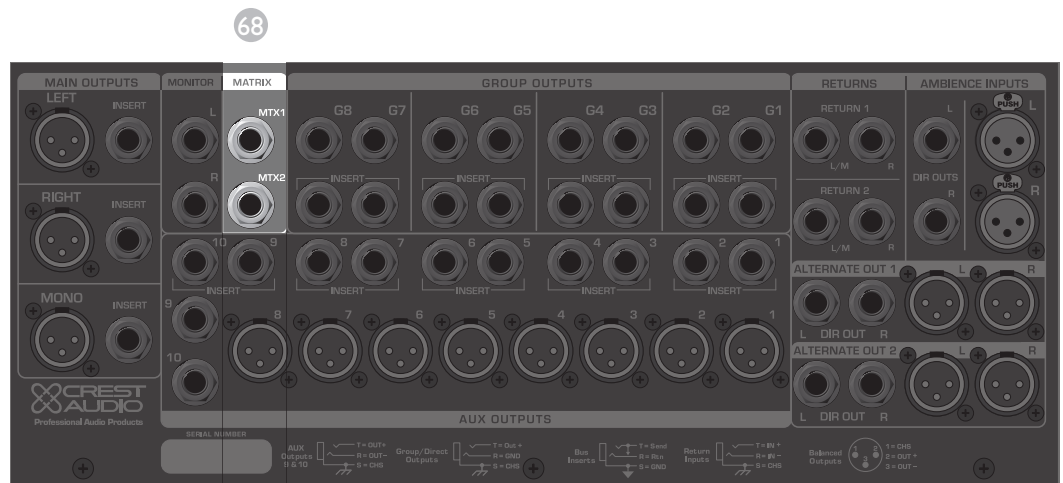
Tip is +Drive, Ring is -Drive Return, Sleeve is Chassis Ground

Send (Drive) impedance is 50Ω

Ring impedance is 50Ω to Audio Ground

Nominal Operating Level= +4dBu

Max Output Level= +21dBu (into 2kΩ or higher)



## stereo returns

### features

The HPW has 2 stereo returns located within the Master module. These inputs are designed to accept line level balanced signals (from an effects unit, a CD player, or other line level source) on their 1/4" TRS balanced jacks.

#### 69 gain

This control adjusts the gain of the input amplifiers. Both Left and Right circuits are simultaneously adjusted. Unity gain is at the mid-point (with a detent), min and max gain adjust is 20dB. The stereo inputs were designed for line-level sources, and can accommodate a wide range of input levels.

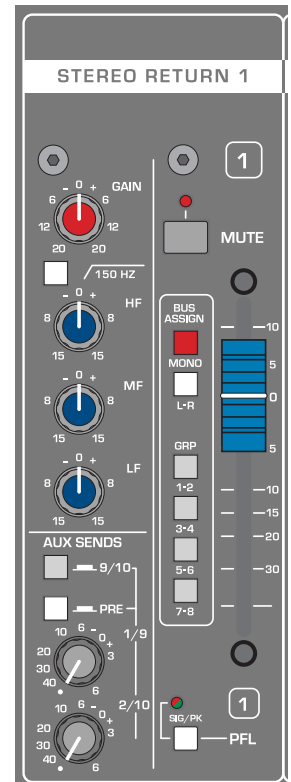
#### stereo lo-cut filter


This filter reduces or eliminates unwanted low frequencies to clean out the mud that often accompanies reverbs or synths. The cut-off frequency of the filter is 150 Hz and the slope is -18dB per octave. This type of filter is also referred to as a Hi-pass filter (HPF). It allows the hi-frequencies to pass, but stops the lo-frequencies.

#### 70 lo cut switch

When the button is in the "OUT" position, stereo Lo-Cut filter is not engaged

When the button is in the "IN" position, stereo Lo-Cut filter is on.



Reverbs can have a  sizable amount of low frequency rumble that is best removed with a low cut filter.

Some synth patches have so much low frequency energy that they lose definition and need high pass filtering.

Engaging the Lo-Cut filter can eliminate these power-stealing low frequencies.

## EQ features

Many audio signals coming into the console require some degree of corrective equalization in order to be part of a good sounding mix.

Each stereo input is equipped with a fixed-frequency, three-band EQ. The HF and LF bands have a shelving response. The MF band is bell-shaped, centered at 3kHz. The EQ circuitry is always in the signal path. Set all EQ controls to “0” (flat) if no equalization is desired.

- 71 **high frequency**—HF— 15dB boost and cut at 10kHz—Shelving Response
- mid frequency**—MF— 15dB boost and cut centered at the 3kHz, Q of 1.5
- low frequency**—LF— 15dB boost and cut at 80Hz—Shelving Response

## aux send features

Two aux sends are available for creating individual output mixes from the Stereo Returns. These mixes can be used for driving effects processors, providing monitor mixes, creating broadcast or alternate sound reinforcement mixes, or other special requirements. The signal fed to each of the Auxes is a sum of the Left and Right stereo signals. The Aux sends are normally fed from the Post-fader stereo signal. When the PRE switch is depressed, the Aux sends are fed from the Post-EQ, Pre-fader signal. The Aux sends are always affected by the Mute switch.

### 72 Aux 1/2 or 9/10 selector button

This button determines which Auxes receive the stereo return signal. When the button is in the “OUT” position, Aux 1 and 2 are selected. When the button is in the “IN” position, Aux 9 and 10 are selected.

### 73 PRE

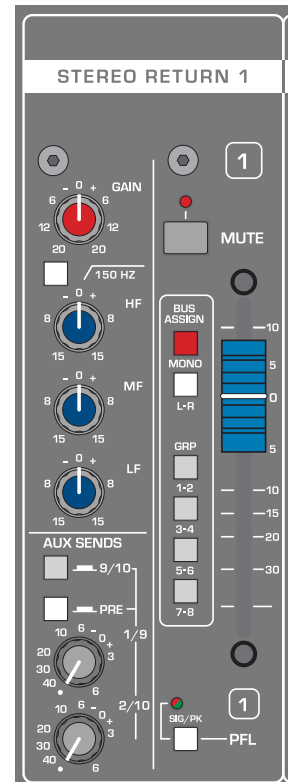
The default signal source for the aux sends is post-fader. This switch is used for selecting the Pre-fader signal for the Aux sends. The Pre-fader signal is derived Post-EQ.

When the button is in the “OUT” position, aux sends are Post-fader.

When the button is in the “IN” position, aux sends are Pre-fader (Post-EQ)

### 74 aux sends (1-2 or 9-10)

These knobs adjust the amount of signal sent to the corresponding Aux buses. Unity gain occurs at the zero setting, with 6dB additional gain available above that.



## channel muting features

### 75 MUTE and MUTE LED

Pressing this switch will mute the stereo feed to any of the assigned buses and any Aux sends. The associated red-LED will illuminate when the stereo channel is muted.

## bus assignment features

The bus assignment section offers considerable flexibility for creating what eventually becomes the main output mix. Stereo Inputs can be assigned to the independent Mono bus, the Left-Right buses, or any of the odd-even paired subgroups (1-2, 3-4, 5-6, 7-8). All assignments are derived post-fader, post-eq, and post-mute. Since these are stereo inputs, the assignments are done in stereo: the left-side input signal is assigned to the left and odd buses, the right-side signal is assigned to the right and even buses. The Mono bus is fed from a summed mix of the left and right-side input sources.

### 76 Bus Assign

#### M (Mono)

Assigns the summed, post-fader channel signal to the Mono Bus. **L-R (Left-Right)**

Assigns the post-fader, pan-pot signals to the Left and Right Buses.

#### 1-2 (Groups 1-2)

Assigns the post-fader signals to the Group 1 and Group 2 Buses.

#### 3-4 (Groups 3-4)

Assigns the post-fader signals to the Group 3 and Group 4 Buses.

#### 5-6 (Groups 5-6)

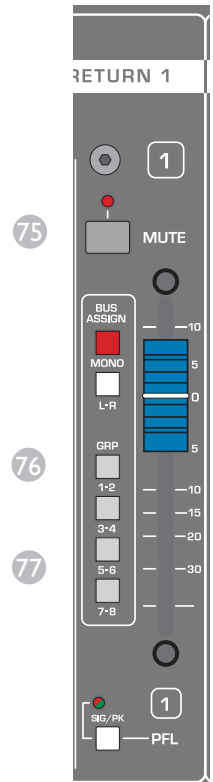
Assigns the post-fader signals to the Group 5 and Group 6 Buses.

#### 7-8 (Groups 7-8)

Assigns the post-fader signals to the Group 7 and Group 8 Buses.

### 77 stereo fader

The stereo inputs are provided with high-quality, 60mm stereo faders. Normal mixing range is around the "0" mark, with up to 10dB fader-boost available when needed.



## signal monitoring features

The stereo inputs are equipped with a bicolor LED that displays the summed, Pre-fader signal level with varying intensity green illumination, and also indicates impending channel overload (within 3dB of clipping) by turning red. Clipping is sensed both pre and post fader, so even if the fader is down, you will be informed of any preamp or EQ related overload problems.

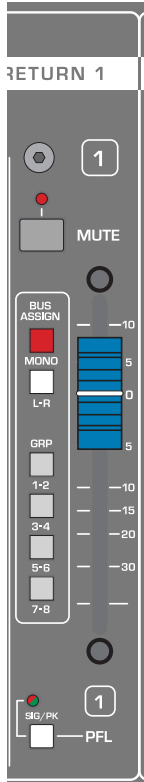
A PFL (Pre-Fader Listen) switch is provided that lets the operator monitor the stereo input signal in the console's Solo system. When depressed, the channel's pre-fader signal sent to the console's Solo system (see Master section for details on the Solo system functions). The Stereo Inputs are monitored in stereo in the Solo system.

**78 PK/Sig LED**

Pre-Fader signal (summed L and R) is shown as varying GREEN intensity, while channel clip warning illuminates RED.

**79 PFL**

When this switch is depressed ("IN"), the stereo pre-fader signal is sent to the console's Solo system. The channel LED is illuminated RED to indicate that the PFL is active.

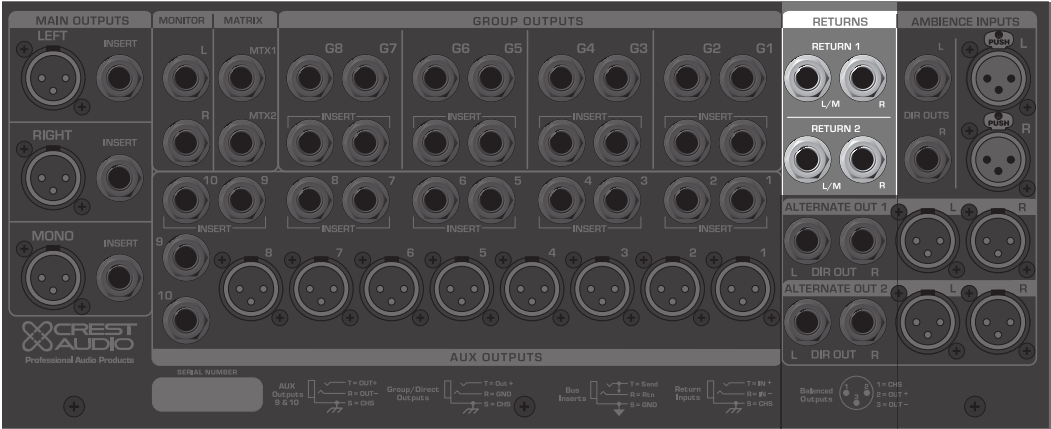


78  
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**80 rear panel connectors**

The connectors associated with both stereo returns are located on the Master rear panel. The TRS inputs are balanced, and can accept either balanced or unbalanced signals. On all TRS inputs, the Left input is "normalled" into the Right jack, allowing mono signals to be fed to both sides of the Stereo input by plugging the signal into JUST the Left jack. If nothing is plugged into the Right jack, it will receive its source from the Left jack. Once a plug is inserted into the Right jack, this "normal" connection is broken and the Right input receives its signal from the Right jack.

80



## alternate outputs

### features

The HPW has 2 alternate outputs located within the Master module. These outputs are designed to allow the user to select the signal source that is being output. This feature is especially useful when sending audio for broadcast, recording, an attached room, public spaces or assisted hearing devices. These outputs have full control dynamics, with expansion, compression and limiting

#### 81 source

##### M (Mono)

Assigns the mono, pre-fader signal to the alternate output.

##### L-R (Left- Right)

Assigns the L-R (Stereo), signal to the alternate output.

##### MTX 1 and 2

Assigns the Matrix Mix 1 (or Matrix Mix 2) signal to the alternate output. Pressing both the MTX1 and MTX 2 assigns a Matrix stereo signal to the alternate output. MTX 1 assigns the signal to the left while MTX2 assigns the signal to the right. If only one MTX signal is assigned, it is in mono.

#### 82 output mono

This button sets the alternate output for mono operation

When button is in the "OUT" position, the signal is output as stereo.

When button is in the "IN" position, the signal is left and right summed.

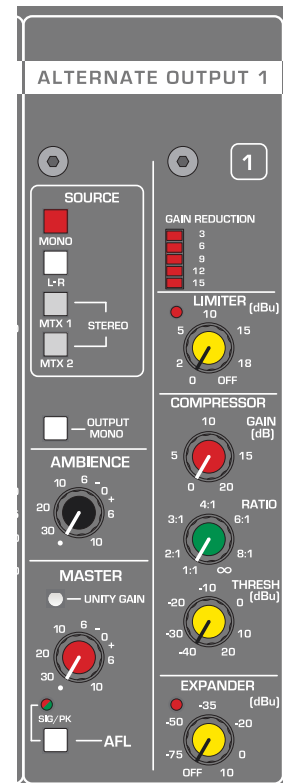
#### 83 ambience

This knob is used to add the stereo ambience signal (from the ambience input) to the alternate output. The ambience signal is post-fader and is fully dependent on the ambience controls. Adjusting or muting the ambience input signal will affect the alternate output's ambience.

See Ambience Input on page 46.

#### 84 unity gain

The unity gain is used for applications where the user should not have access to the master level controls, such as a feed for a nursery or narthex. This inset button disables the master level control and sets the gain to unity (same as 0 on master control). A small tool is required to activate the unity gain.





**85 master**  
This knob controls the main level of the alternate output.

**86 PK/Sig LED**  
The After-Fader signal is shown as varying GREEN intensity, while the channel clip warning illuminates RED.

**87 AFL**  
When this switch is depressed, the stereo after-fader signal is sent to the monitoring system. The channel LED is illuminated RED to indicate that the AFL is active.

**88 gain reduction metering**  
This meter array indicates the amount of gain reduction being applied to the alternate output. It indicates compressor, expander, and limiting activity. The source of the gain reduction can be determined by examining the expander and limiter's LEDs. The one that is lit, is the source. If neither is lit, it is the compressor that is active.

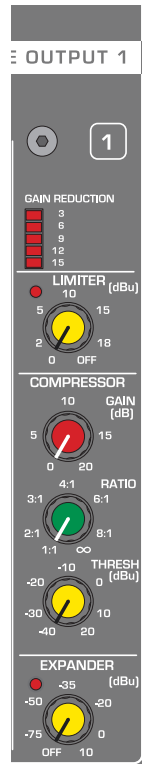
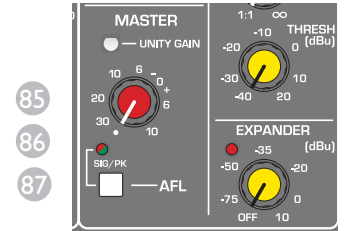
**89 limiter**  
This knob sets the threshold level at which limiting begins. The corresponding LED will illuminate when the established threshold has been exceeded.

**90 compressor**  
The HPW's alternate outputs are equipped with full featured compressors  
Gain - This knob controls the amount of make up gain applied to the alternate output.

Ratio - This knob controls the slope of the compression. At fully clockwise ( $\infty$ ), the compressor acts as a limiter. Compression is effectively disabled when set to 1:1.

Threshold - When the signal exceeds the level set by this control, it is attenuated by the amount set by the ratio control.

**91 expander**  
This knob sets the threshold level at which downward expansion begins. The corresponding LED will illuminate when the established threshold has been exceeded. The ratio is preset to 1:2.



The attack and release characteristics have been optimized for voice performances.



## ambience inputs

### features

The HPW has been designed with a stereo mic ambience input for “real life” sound enhancement. This feature allows sound from the room to be added to the sound system allowing better reflection of what the audience hears. The ambience input has direct outputs and can be assigned to the auxes or alternate outputs.

**92 gain**

This knob adjusts the gain level of the ambience input. Both left and right circuits are simultaneously adjusted.

**93 balance**

This knob determines the signal's left-right balance. Rotating the control counterclockwise increases the amount of left signal, while rotating the control clockwise increases the amount of right signal sent from the ambience input to the assigned bus.

**stereo lo-cut filter**

This filter reduces or eliminates unwanted low frequencies without substantially affecting the program material. Ambient microphones can easily pick up air-handler or reverberant room noise that clouds the signal. This filter can help clean it up. The cut-off frequency of the filter is 70 Hz and the slope is -18dB per octave. This type of filter is also referred to as a Hi-pass filter (HPF). It allows the hi-frequencies to pass through, but stops the lo-frequencies.

**94 lo cut switch**

When the button is in the “OUT” position the stereo Lo-Cut filter is not enabled  
 When the button is in the “IN” position the stereo Lo-Cut filter is on.

**95 EQ**

The ambience Input is equipped with a fixed-frequency, four-band EQ. The HF and LF bands have a shelving response. The HM band is bell-shaped, centered at 4kHz. The LM band is centered at 250Hz. The EQ circuitry is always in the signal path. Set all EQ controls to “0” (flat) if no equalization is desired.

**high frequency**— HF 15dB boost and cut at 10kHz — Shelving Response

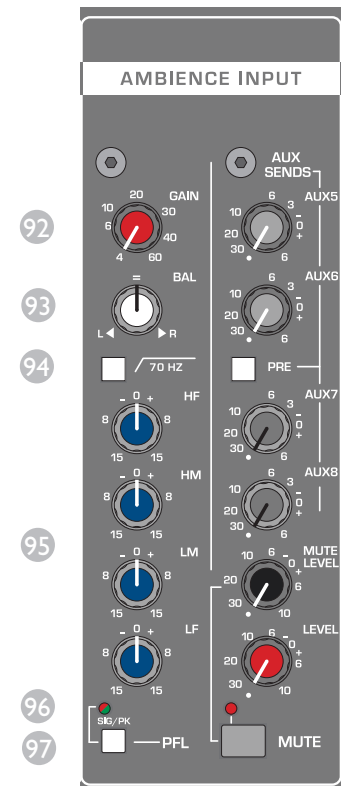
**high mid frequency**— HM 15dB boost and cut centered at the 4kHz, Q of 1.5

**low mid frequency**— LF 15dB boost and cut centered at the 250Hz, Q of 1.5

**low frequency**— LF 15dB boost and cut at 80Hz — Shelving Response

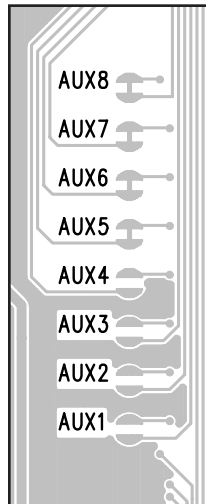
**96 PK/Sig LED** - Pre-Fader signal (summed L and R) is shown as varying GREEN intensity, while the channel clip warning illuminates RED.

**97 PFL** - When this switch is depressed, the stereo pre-fader signal is sent to the console's Solo system. The channel LED illuminates RED to indicate that the PFL is active.



## 98 aux send level 5-8

These knobs adjust the amount of signal sent to the corresponding AUX buses. Unity gain occurs at the zero setting, with 6dB additional gain available above that. Note: The Aux Sends default to buses 5-8. To send to auxes 1-4 internal solder blob jumpers are available.



**NOTE:** When changing the aux sends, be certain to cut and solder in correct pairs (aux 1/5, 2/6, 3/7, and 4/8.) For example, if changing to Aux 1, be certain to remove the solder on Aux 5.



## 99 PRE

The default signal source for these AUX SENDS is post-fader. These switches are used for selecting the Pre-fader signals for Auxes 5-8 (or 1-4 if solder blobs have been changed). The normal Pre-fader signal is derived Post-EQ.

When button is in the “OUT” position, aux sends are Post-EQ, Post-fader.

When button is in the “IN” position, aux sends are Post-insert, Post-EQ, Pre-fader.

## 100 level

This knob adjust the amount of signal sent from the ambience input to the assigned bus and to the ambient level controls on the alternate outputs. Unity gain occurs at the zero setting, with 10dB additional gain available above that.

## 101 mute

This button toggles between the ambience output level (100) and the mute level. The LED illuminates when mute is active. The ambience mute functions through the programmable mute scenes.

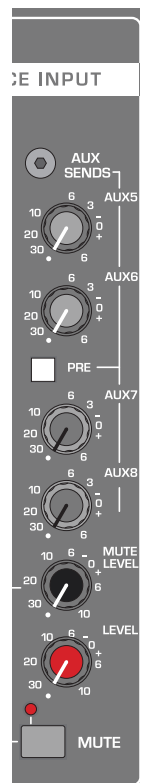
When button is in the “OUT” position, the level is controlled by the ambience level (100).

When button is in the “IN” position, the level is controlled by the mute level (102).

## 102 mute level

This knob adjusts the amount of signal sent from the ambience input to the assigned bus when the mute button has been engaged. Unity gain occurs at the zero setting, with 10dB additional gain available above that.

Setting the ambience mute level allows the user to preset two ambience levels. Use the ambience mute button to select the mute level for spoken word and the main ambience level for music.



## **master section: monitoring and control**

### **overview**

The HPW is equipped with versatile monitoring, talkback, and muting sections that allow the operator to monitor and control the various signals within the console. A brief overview of each is presented. Each section will be described on its own, following a brief overview.

### **monitor section**

The dedicated Monitor Section allows the user to listen to and view the various signals operating within the Console. This section consists of the monitor select circuitry and dual LED meters, the Solo system, and the headphone system.

To better control the overall operation of the HPW, the user should ensure that the signals within the console are being mixed as intended, and are operating within the proper limits. The Monitor section allows the operator to select any of the main mix buses (alone or in combination), and then listen to and view the levels of those signals. A pair of TRS output jacks are provided to feed these signals to an external amplifier/speaker system. The rear-panel jacks are controlled by the Monitor Level pot.

### **solo system**

Each Input and Output circuit of the console is equipped with a Solo switch. For the Inputs, this switch is labeled PFL (Pre-Fader-Listen); for the Outputs, AFL (After-Fader-Listen). Both types of these switches feed the associated Input or Output signal into the console's Solo bus. The Solo System feeds the Monitor Section and allows the operator to listen to and view that soloed signal. The Solo bus is a summing bus which will mix all selected signals together: if multiple Solo switches are depressed, the user will hear that mixture. The Solo signal is displayed on the L and R Solo Meters (shared with the Monitor Section).

### **headphone system**

The headphone system is normally fed by the Monitor Section. The selected source can be listened to on the headphones. If the Solo System becomes active, the headphones automatically switch-over to monitor the Solo bus.

### **talkback section**

The operator can use the built-in facilities of the HPW to talk to the main, group, or aux buses in the console. Often times, the operator will need to selectively communicate with a performer, or slate a performance during a recording. The talkback section, with its own microphone input jack, can be used for this purpose.

### **mute scene section**

The HPW provides 8 programable mute scenes. Each of the mono or stereo input channels can be assigned to any of these scenes, allowing for selective muting control of different groups of input channels. Different collections of voices or instruments can be grouped together for overall muting, or different mute scenes can be constructed for the various sections of a performance.

### **output metering**

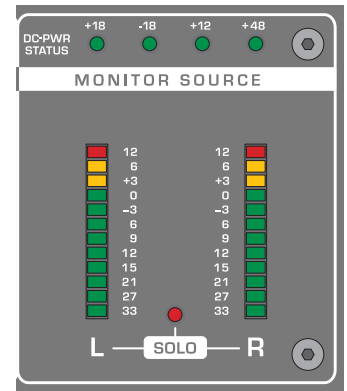
Ten dedicated LED meters show the output level of whatever signal is being controlled by the 100mm faders. Normally the 8 Group outputs, along with L and R are displayed. If a fader-reverse switch is depressed, that corresponding Aux output is displayed instead.

## master section: monitoring and control

### monitor section

The dedicated Monitor Section allows the user to listen to and view the various signals operating within the Console.

This section consists of the monitor select circuitry and dual LED meters, the Solo system, and headphones.



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### monitor metering

Two LED meters, L and R, are provided to display the level of the Monitor source. These meters are calibrated to properly display the internal levels within the console. The 0VU point is the nominal operating level of whatever signal is being monitored. If more than one source is selected, the meters will display the level of those mixed sources. If the solo circuitry has been activated, the solo LED will light and the meters will display the level of the solo signal.

### solo off

Normally, the Monitor system will be interrupted by the Solo system. If a Solo button is pressed (PFL or AFL), the Solo LED between the meters is illuminated and the Solo signal is displayed on the LED meters. The Solo audio takes the place of the selected Monitor sources for both the Monitor outputs and the headphones.

If the Solo Off button is depressed, the meters and headphones will still switch over, however the Monitor Outputs WILL NOT be interrupted by the Solo. This allows the Monitor Output jacks to be used as an additional output for any of the 7 available sources or their mixture. Since the sources feeding the Monitor section are Pre-fader, this additional output is controlled only by the Monitor Level pot, and is independent of any of the main fader settings.

### source select switches

The operator can choose which signals to listen to and view by using the Source Select switches. These switches select the Pre-Fader source of these seven sets of signals:

Stereo Return, Mono bus, L-R buses, Groups 1-2, Groups 3-4, Groups 5-6, Groups 7-8

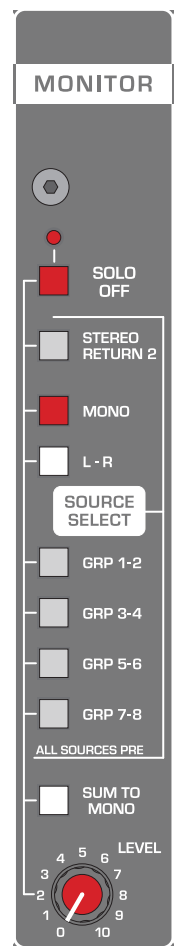
The Monitor System circuitry is stereo, and these are all stereo sources except for the Mono bus. These 7 signals can be combined by selecting more than one source. All sources that are selected will be equally mixed together. This combined signal is then displayed on the Monitor LED meters and fed to the Monitor Level pot and to the headphone system.

### sum to mono

A Sum to Mono switch is provided which mixes the L and R monitor rear-panel outputs together. This switch is useful if feeding a single external monitor speaker. The LED meters and headphones are not affected by this Sum switch.

### Level

This control feeds the Monitor Output jacks (1/4" TRS) on the rear panel. It does NOT affect the level of the headphone feed or the LED meters.



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**108 monitor output 1/4" TRS jack (rear panel)**

The monitor output signal is available on these output jacks. The jacks are impedance-balanced and ground-compensated.

Tip is +Drive, Ring is -Drive Return, Sleeve is Chassis Ground

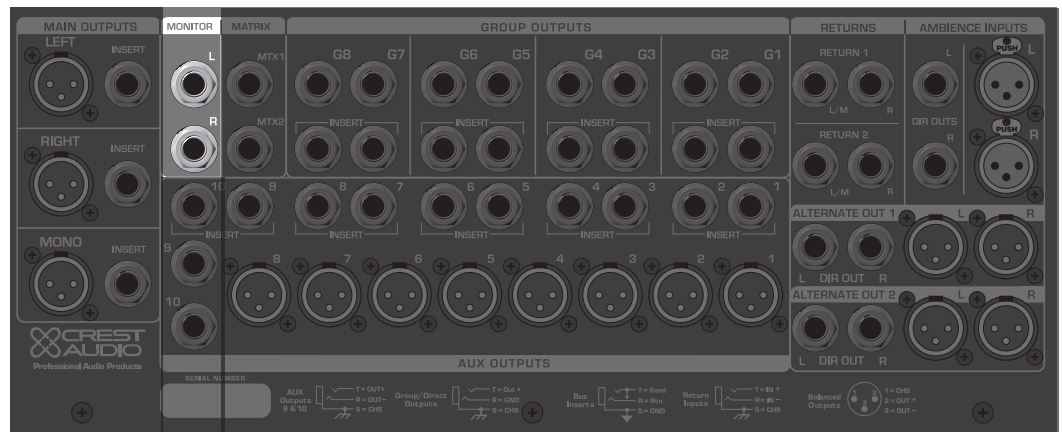
Send (Drive) impedance is 50Ω

Ring impedance is 50Ω to Audio Ground

Nominal Operating Level= +4dBu

Max Output Level= +21 dBu (into 2kΩ or higher)

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**solo operation**

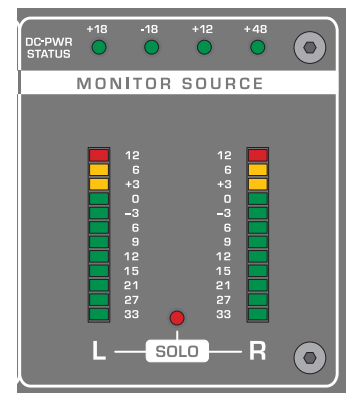
The HPW is equipped with a stereo solo bus that allows the operator to monitor the various signals within the Console. All Input channels have a PFL (Pre-Fader Listen) switch. Outputs are equipped with an AFL (After-Fader Listen) switch. The PFL circuit on the Inputs allows the operator to properly set the channel's internal signal level using the channel's Gain pot and Pad switch. Since the signal being monitored is PFL the mute status, the channel fader level and any bus assignments, are ignored. This allows a channel to be monitored and adjusted without being sent into any of the main mixes. The operator has a chance to properly set the levels and EQ of a channel before anyone else might hear it.

For Outputs, the AFL signal point allows the operator to hear exactly what is being fed to the outside world. The output level, as well as any inserted processing gear, can be monitored by the Solo system. For times that a Pre-Fader point needs to be checked, the Monitor Sources can be used to listen to a bus before its main fader.

**NOTE:** Since the Solo system uses a summing bus, if more than one source is selected (PFL switch is depressed), the signal being displayed and heard is a mixture of those selected signals. When setting the gain of an Input channel, make sure that only 1 Input is selected to avoid errors.

**109 solo metering**

Whenever a Solo button is pressed (PFL or AFL), the SOLO LED indicator will illuminate and the Monitor Source LED meters will switch-over to display the Solo bus level. These meters are calibrated to properly display the different internal levels within the console. The 0VU point is the nominal operating level of whatever signal is being Soloed. Use the Solo system and metering to set the gain of an Input channel, monitor the output level of a bus, or check on the vocal blend of an Aux monitor mix.



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## headphone source

The operator can use the headphones to listen to the various signals within the Console. The headphones are normally fed from whatever sources are selected in the Monitor Section. The level is controlled by the Phone Level control (the Monitor level control will not affect the headphone level).

When Solo is active, the headphones automatically switch over to the Solo bus. Any channels that are assigned to the PFL or AFL bus will be heard. The Monitor meters automatically switch over to the Solo bus to display the levels of any solo signals.

## headphone jack (1/4" TRS)

The headphone signal is available on this jack, and is located beneath the wrist-rest on the front chassis. The headphone driver is designed to drive headphones of 8Ω or higher impedance (30Ω is typical).

### 110 phones level

This control adjusts the headphone level.

### 111 mute scene edit/cancel

This switch is used when programming the mute presets. To edit a scene, press this switch. The mute preset lights flash until you select the preset you wish to edit. At that time, the selected mute scene preset light will flash along with the channel mutes that are currently assigned to that preset. Turn on or off any mutes that need to be added or removed from the preset, press the Store button (112), then push the button for the preset where you wish to store this setup. To cancel a mute program made in error, simply press the edit switch again to cancel the action instead of storing the changes.

### 112 mute group store

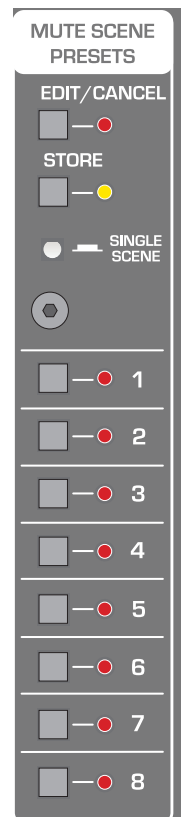
Once a mute preset has been edited, store it by pressing this switch. The preset lights will flash, with the one currently being edited lit solid. Press the button of the preset that will receive the new setup. To cancel a store, press the edit/cancel button instead of the preset button. Alternatively, pressing the store button without first pressing the edit button (111) allows you to store the mutes currently engaged.

### 113 single scene mode

There are two modes of operation in the digital mute system. In the default mode, each of the mute scenes can be individually activated and deactivated. This mode works well for muting groups of microphones that share a common function. The other mode of operation is the single mute scene mode, where only one mute group button can be active at a time. This scene works well for creating scenes that are for a particular part of the performance. The scene would then unmute all needed mics, and mute the unused mics at one time. To activate the single scene mode, simply use a small tool and press the recessed button.

### 114 presets

Each preset holds a stored mute scene. All the channel mutes and the ambient mute can be part of a preset. When a preset button is pressed, the channels assigned to that scene will mute. When pressed again to disengage the Mute Scene, those channels that are part of that scene will unmute unless the channel is locally muted or is muted as part of another mute scene. Depending on the mode, the 8 mute scene buttons can each be muted or un-muted independently. Pressing a mute scene button will cancel the previous selection when in single mute scene mode.





## talkback section

The operator can use the built-in facilities of the HPW to talk to the main, group, or aux buses in the console. Often times, the operator will need to selectively communicate with a performer, or slate a performance during a recording.

### 115 talkback input

This front-panel XLR jack can accept mic-level signals and is equipped with a phantom power option header (internally located behind the XLR jack within the Master module). The default setting for the phantom power is ON.

NOTE: +18 volts phantom power is available for the TB mic. Most condenser mics will operate at this voltage, but there are some microphones that need the full, +48 volts to properly function. Only use dynamic microphones, or condensers that can operate properly on +18 volts for the TB mic.

### 116 talkback level

This control sets the level of the TB signal to be sent to the selected buses.

### 117 talk to (talkback select switches)

The operator can choose which buses are fed by the Talkback audio using these 8 switches. The 3 main buses, all 8 groups, or the Aux buses (in pairs) can be selected.

### 118 talk on (talk back on with LED)

This latching switch feeds the Talkback audio to the selected buses. The LED lights when it is active.

## output metering

Ten dedicated LED meters show the output level of whatever signal is being controlled by the corresponding 100mm fader. Normally the 8 Group outputs, along with the L and R main buses are displayed across the 10 meters. If a Fader-Reverse switch is depressed, that corresponding Aux output (1 thru 10) is displayed instead. The displayed signal is Post-fader and Post-Mute. The meters have a VU-type response, showing the average levels of the signals being monitored. Use the Peak LEDs on each individual output to check for any overload conditions for that signal.

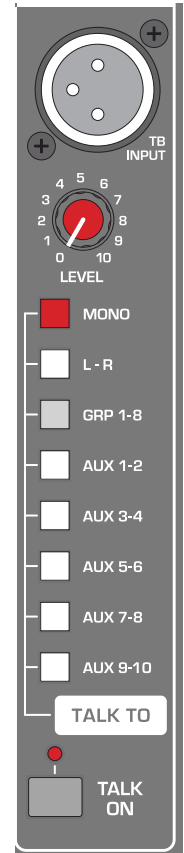
The nominal output level of the HPW console is +4dBu. This is indicated as 0VU on the meter scale.

## power supply monitor

These 4 LEDs, located above the Solo meters, monitor the internal voltages of the Console. Each green LED indicates the presence of its indicated voltage rail. These LEDs will illuminate when the Console is powered EITHER from its internal supply OR from an external supply. See Power Supply section for further details.

## lamp connectors

A 12V DC BNC lamp connector is provided on each channel module for console illumination. There are two lamp groups - one on each side of the master section. These are current protected with fuses that automatically reset when an overload condition is removed. (A severe overload may require power cycling to restore lamp power.) A maximum of 750mA can be drawn from either group. This corresponds to two high intensity Halogen bulbs, or four low intensity incandescent bulbs. Gooseneck lamp assemblies are available separately. Positive voltage is on the center pin. The connector barrel is at 0-volts.



**NOTE:** The +18 and -18 indicators are for the main analog voltage rails. These are used to power the majority of the amps within the Console. The +12 indicator shows the aux-power rail used to power the LEDs and other non-audio circuits of the Console. The +48 LED monitors the phantom voltage.

**NOTE:** Any 12 volt accessory can be powered from these BNC connectors, as long as it draws less than 750mA (total for lamp group). You can try one of those 12 volt personal fans to keep cool when mixing on a hot day.



## power supply - internal

### internal supply

The HPW is equipped with an internal power supply, based on a universal input, switch-mode design. As such, you can power the HPW from any worldwide AC mains voltage from 100 to 240 volts, 50 or 60Hz. Input power is approx 200 watts maximum (56-chan console), so power requirements are minimal. A standard IEC power-inlet socket is used, along with a country-specific line cord, to bring AC power into the Console. The power supply, along with the entire console, is UL/CUL and CE rated for safety and emissions. There is an internal fuse for safety reasons, but no external fuse is provided. There are no user serviceable parts inside. The entire PSU assembly would be replaced in case of failure.

The power supply is always located under the first input module to the left of the Master module (viewed from the front of the console). The rear-panel of that Input module has the normal complement of input connectors, plus the additional, power-supply related controls.

### 119 AC input

A standard 15 amp, IEC power-inlet socket is used to bring AC power into the Console. Use the appropriate line cord for the country of operation. Any worldwide voltage is acceptable, from 100 to 240 volts, 50 or 60Hz. Input power is 200 watts max.

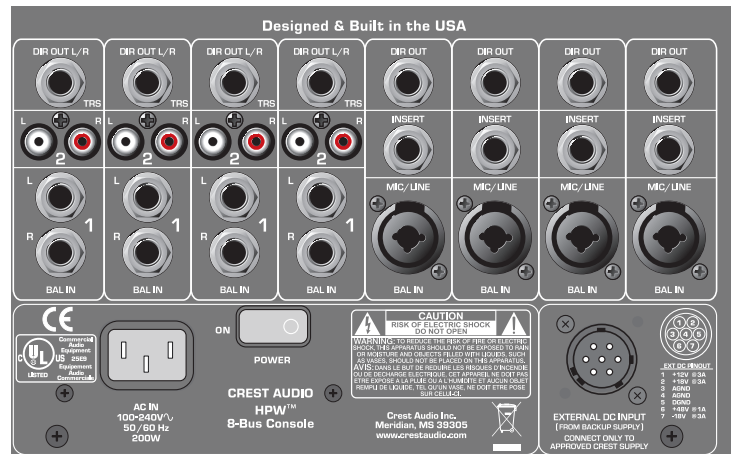
### 120 on-off switch

This switch turns the internal supply on or off. It has no direct effect on the External DC connector.

### 121 Ext DC Connector

This 7-pin connector is used to bring DC voltages into the console from a back-up, or stand-by (redundant) supply. These externally-sourced voltages are “diode-steered,” along with the voltages from the internal supply, to provide power for the console. Although this connector is protected against incorrect hookup (reverse or over-voltage), ONLY Crest-approved power supplies should be used.

**NOTE:** The proper line cord is supplied with the HPW to match the country of destination. If lost or missing, a standard, approved IEC cord-set can be used.

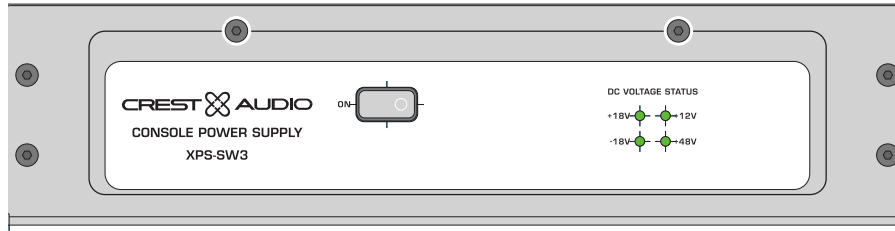


119

120

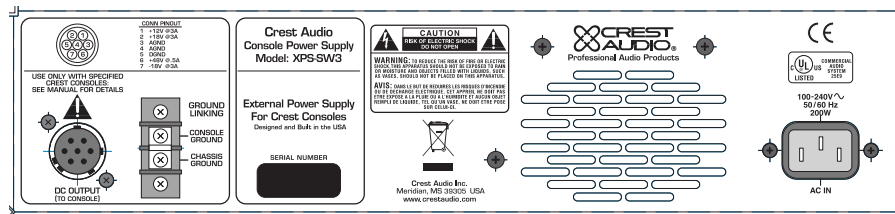
121

## external power supply - front

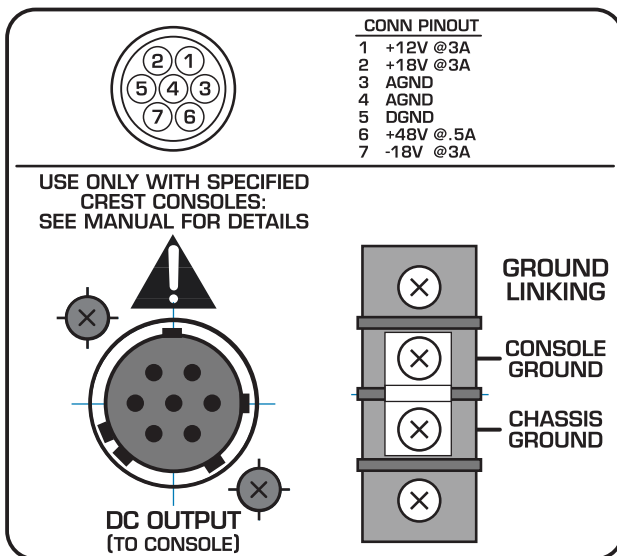


**NOTE:** The 2U rack-mount panel can be removed from the chassis if a stand-alone, floor or desktop supply is preferred. Remove the six #8 screws securing the front panel to the chassis. Remove the front panel and store it away, then replace the #8 screws (to fill the threaded holes in the front of the chassis). Attach the supplied feet to the bottom of the chassis in the four indicated positions.

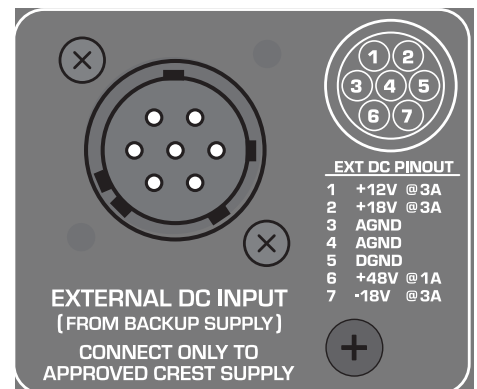
## external power supply - rear



## external power supply - DC out connector



## console rear - external DC connection



## external power supply

The style and pinout of the DC Connectors on the HPW are the same as the Crest X-Series of consoles (X-Eight, X-Four, X-VCA, X-Monitor), and the existing X-Series supply CAN be used to power the HPW console. The voltage requirements are the same, but the current demands are less with the HPW.

The better (and cheaper) solution for an external supply is to use the supply designed for the HPW, the model XPS-SW3. This external supply uses the same basic PSU assembly from the HPW, fitted in a 2U chassis. The rack-mount faceplate can be removed if a stand-alone, floor or desk mounted supply is desired. AC power requirements are the same. Any worldwide voltage can be used to power the supply.

## power supply controls - front

**power** When this switch is ON, AC power is supplied to the internal circuits.

## DC status

These four green LEDs show the condition of the four main DC supply voltages present on the rear-panel DC output connector.

## power supply controls - rear

### AC input

This is a standard, 15 amp IEC power inlet connector. A mating cord set is normally supplied with the Console to match local power requirements. Any worldwide AC mains voltage is acceptable, from 100 volts to 240 volts, 50 or 60 Hz. Maximum input power is 200 watts.

### fan

There is a low-speed fan mounted within the power supply. This fan will draw cooling air through the rear and exhaust it through the slots in the sides of the chassis (you won't feel a lot of air moving). Do not block the vents or the supply could overheat and be damaged.

## DC output

This 7-pin circular socket connector carries the DC voltages from the supply. It should be connected (via the DC power cable) ONLY to the DC Input connector of approved Crest Consoles. Even though the power supply is protected against output abuse, it was specifically designed for Crest mixing consoles. It may not function properly if attempts are made to power other devices (including other manufacturer's consoles!).

## ground link

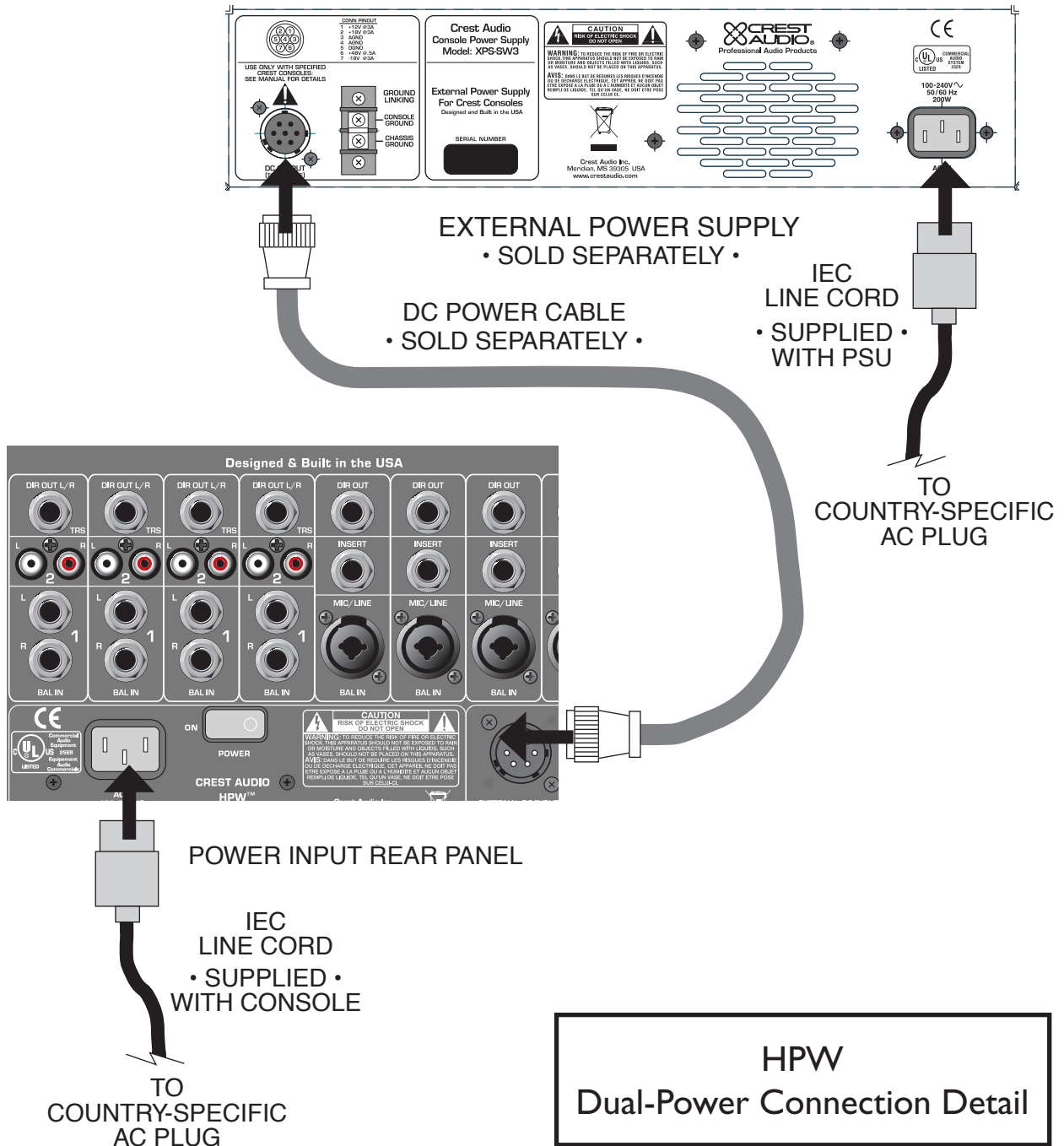
When using an external supply, the Console's internal supply is plugged into an AC outlet AND the console is connected (via the DC cable) to an external supply which has its own AC plug and outlet. These two, different AC outlets may be at different ground potentials. Depending on various (sometimes unknown) conditions, a "ground-loop" may occur. This usually manifests itself as a low-level hum in the console outputs.

This barrier-strip is provided to allow the chassis-ground of the external power supply to be lifted from the console audio-ground, thereby removing the 2nd (loop) path of the Console's audio-ground to the AC outlet grounds. The Console's internal supply ALWAYS has the console chassis-ground and audio-ground tied together inside the console.

Normally, the supplied metal link ties the two barrier-strip ground circuits together. This link can be removed to separate these two grounds of the external supply to minimize hum.

**NOTE:** Removing this link DOES NOT lift the chassis of the external supply from the AC safety ground, the chassis of the power supply enclosure is ALWAYS attached to the 3rd wire ground of the AC inlet connector. That connection is there for safety reasons- it shunts (to the AC ground plug) any dangerous internal faults that may contact the chassis metalwork. AT NOTIME SHOULD THIS 3rd WIRE GROUND BE DEFEATED (by cutting off the AC plug ground pin or by improperly using a ground-lift adapter).

power supply - dual hookup



**NOTE:** When using an external supply in Redundant-Mode (External supply always powered ON with the Console), having the Console and the External power supply plugged into two separate AC circuits will give an extra measure of backup. If one of the AC circuits should fail (overload, bad cord, someone tripping over a wire, etc), the other supply (internal or external) will continue to operate. Wired in this way, you are providing a redundant path for the AC power in addition to the redundancy provided by the supplies themselves.

## power supply - dual

### powering the HPW

There are 4 distinct ways to power the HPW:

- 1) Internal Supply ONLY
- 2) Internal Supply PLUS an External Supply as a Redundant Supply
- 3) Internal Supply PLUS an External Supply as a Back-Up Supply
- 4) External Supply ONLY

# 1 is the default powering method. The HPW comes equipped with an Internal Supply and line cord.

# 2 and #3 differ only in their implementation. Both depend on an external supply (plus DC cable) to take over if the internal supply fails, but differ in the philosophy behind their operation.

For method #2, the External supply is always connected to the HPW and is powered-up whenever the HPW's internal supply is on. If the internal supply fails, the external supply takes over immediately without any operator intervention or audio interruption. The same thing happens if the external supply fails; the internal supply keeps the console operating. Basically, you have two supplies powering the console. If either of the supplies fail, the other continues to operate.

For method #3, the external supply is connected to the HPW in the same way as #2, but the supply is switched OFF. If the internal supply fails, the external supply is then switched on. This requires the operator to manually perform the switch over. During the down-time, the console stops working, and there could be a disturbing POP when the power comes back on.

Choosing method #2 or #3 comes from one's belief as to what's more likely to happen:

A) An internal failure of a power supply from a general component fault

OR

B) An overall AC power-related problem that causes a supply to fail.

If you believe A is more likely, then use method #2. You are keeping both supplies always on-line to cover for one another. The switch-over is seamless, so the only way to later check for a faulty supply is to try to run the console on the internal or external supply only. The External supply does have its own set of status LEDs.

If you believe that you're more likely to encounter AC power-related problems severe enough to fry a supply, use method #3 and keep the back-up supply switched OFF until you need it. (Some users go as far as not even plugging the supply into the power strip until they're sure that the power is restored and good).

Our recommended method is #2. The supply (both external and internal) is designed to operate from 100 to 240 volts without a problem. In fact, it can handle 260 volts input and stay within spec. It is unlikely that an input overvoltage condition will cause the supply to fail. By keeping both supplies on at all times, audio continuity is maintained if one of the supplies fail.

Method #4 was listed as a possible way to power the HPW: External supply only. Typically, this method is only used in the event of an internal supply failure. You can still operate the unit until an internal power supply replacement is obtained. The internal, failed supply should be switched OFF and no AC line cord should be fitted. If an internal supply fails, it is unlikely that it will interfere with the External supply's operation.

**NOTE:** You will NOT get better noise, distortion or overall performance gains from the HPW if you power it from an external supply. This may be true for some other brands of consoles, but the HPW was designed for full performance even when operated from its internal supply.

Frequency Response	20Hz–20kHz • +0/-0.5dB Any input to any output (Ref 1kHz @ +15dBu output level)
THD+Noise	Chan Input to Group or Main Output (Left/Right/Mono) <0.01% THD 20Hz to 20kHz at +15dBu out
Noise	(20Hz to 20kHz) Mic EIN: <-127 dBu (Measured @+60dB gain, 150Ω source) Bus Noise: Better than -85dBu (w/32 Channels Routed)
Crosstalk	(Measured 20Hz-20kHz, Ref to +15dBu output) Channel Mute >90dB Channel Routing >85dB Channel fader attenuation >85dB Aux Send attenuation >80dB
Phase Shift	<+/-30 degrees 20Hz to 20kHz mic in to main out

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XLR Inputs	2k5 ohms Balanced Max Voltage Gain: Mic-In To Group To Left/Right Balanced Out= 90dB
Main Outputs	L/R/Mono Out: 100Ω Balanced Male XLR • Max Output= +26dBu Aux/Group Out: 50Ω Ground-Compensated/Impedance-Balanced TRS • Max Out= +21 dBu Channel Direct Out: 100Ω Impedance-Balanced TRS • Max Out= +21 dBu
Insert Points	TRS Jack • Tip= Send, 100Ω Output Impedance • Max Out= +21dBu Ring= Return, 5kΩ Input Impedance Channel Insert Level= +4dBu Bus Insert Level= -2dBu
Internal Power Supply	AC Input: 100-240 VAC, 50/60 Hz via 15A IEC Mains connector 7-Pin DC Connector provided for external (redundant) PSU Maximum power consumption (56-chan): 200 watts
Ext DC Power Requirements (Max for 56-chan model)	+/- 18 volts @ 3 amps (Main analog rails) +12 volts @ 3 amps (LED and aux circuits) +48 volts @ .6 amps (Phantom voltage) NOTE: Use ONLY Crest Approved power supplies for the HPW

Dimensions: HPW 20+4	Inches: 46.5 X 28 X 9	MM: 1175 X 702 X 229
Weight: HPW 20+4	72 lbs 33 kG	
Dimensions: HPW 28+4	Inches: 56.5 X 28 X 9	MM: 1424 X 702 X 229
Weight: HPW 28+4	90 lbs 41 kG	
Dimensions: HPW 36+4	Inches: 66 X 28 X 9	MM: 1673 X 702 X 229
Weight: HPW 36+4	110 lbs 50 kG	
Dimensions: HPW 44+4	Inches: 76 X 28 X 9	MM: 1922 X 702 X 229
Weight: HPW 44+4	125 lbs 57 kG	
Dimensions: HPW 52+4	Inches: 86 X 28 X 9	MM: 2171 X 702 X 229
Weight: HPW 52+4	145 lbs 66 kG	

Dimensions are Width X Depth (Front-to-Back) X Height  
NOTE: Call for detailed chassis drawings before attempting to build a roadcase.

**write-in label** - The white area at the bottom of each channel may be written on with a grease-marker, and later wiped clean with a cloth moistened with isopropyl/rubbing alcohol. Artist (Board) tape may also be applied to this surface, and the tape marked with a permanent marker. **NOTE:** Do not write directly on the Console's surface with a permanent marker. Avoid using standard masking tape; it dries out and leaves a hard-to-remove glue residue.



